

Publications

The following pages list all papers published in the 2005 calendar year as reported to the NSLS by February 28, 2006. Citations are listed in order of beamline number and then alphabetically by the last name of the first author. This list contains reported citations for journal articles, published conference proceedings, books, chapters in books, formal reports, informal reports, technical reports, theses, dissertations, and patents. For citation submissions where research was performed on more than one beamline, the citation is listed under each beamline. However, each citation was only counted once.

The first column in the table (right) lists the number of publications reported to the NSLS during the 2005 fiscal year (Oct. 1, 2004 – Sept. 30, 2005) and published between 2002 and 2005. Although some of these publications were published earlier than FY 2005, they were not reported to the NSLS until this fiscal year. Thus, they have not been counted in prior years' activity reports.

The second column in the table lists the number of publications published in the 2005 calendar year and reported to the NSLS as of Feb. 28, 2006. These numbers are slightly lower than the fiscal year values because they contain only publications from 2005 and it often takes many months or years to account for user and staff publications.

Several types of journal articles are reported in this list, including premier journals, peer-reviewed journals, and a few that are not peer-reviewed. A publication is considered premier if the journal has an impact factor of 6 or greater (from Journal Citation Report 2003, Thomson Institute for Scientific Information). These journals represent approximately the top 3% of all journals.

	Reported in Fiscal Year 2005*	Published in Calendar Year 2005**
Journals, peer-reviewed, premier	239	189
Journals, other peer-reviewed	503	438
Journals, non peer-reviewed	23	23
Total Journals and Magazines	765	650
Books/Chapters in Books	7	5
Published Conference Proceedings	49	43
Reports: Technical, Formal, Informal	3	3
Theses/Dissertations	24	17
Patents	1	4
Total Misc. Publications	84	72
Total Publications	849	722
NSLS VUV User Publications	68	77
NSLS X-Ray User Publications	718	586
NSLS Staff Publications	63	59
	849	722

* Publications reported to the NSLS from Oct 1, 2004 – Sept. 30, 2005 and published between 2002 – 2005.
 ** Publications published in 2005 as reported to the NSLS by Feb. 28, 2006.

For calendar years 2002-2005, the NSLS users and staff published in 40 premier journals. These premier journals are: Accounts of Chemical Research, Advanced Materials, Angewandte Chemie, Annual Review of Biophysics and Biomolecular Structure, Annual Review of Genomics and Human Genetics, Applied Physics Letters, Cancer Cell, Cell, Chemical Reviews, Chemistry and Biology, Current Biology, Current Opinion in Chemical Biology, Current Opinion in Structural Biology, EMBO Journal, Faseb Journal, Genes and Development, Genome Research, Human Molecular Genetics, Immunity, Journal of Biological Chemistry, Journal of Experimental Medicine, Journal of Immunology, Journal of Neuroscience, Journal of the American Chemical Society, Molecular and Cellular Biology, Molecular and Cellular Proteomics, Molecular Cell, Nano Letters, Nature, Nature Immunology, Nature Materials, Nature Structural & Molecular Biology, Neuron, Nucleic Acids Research, Physical Review Letters, PNAS, Reports on Progress in Physics, Science, Structure, Trends in Biochemical Sciences, and Trends in Neurosciences. Two additional journals are included in the premier list, Applied Physics Letters (impact factor 4.0) and Environmental Sciences and Technology (impact factor 3.6), because these journals represent the "best in class" for the NSLS industrial and environmental science users, even though their impact factors are less than 6.

In FY 2005, NSLS users and staff had 849 publications – a record for high for the facility. Moreover, 239 papers were published in premier journals, representing 28% of the total publications from the facility, and demonstrating the high impact of NSLS science.

NSLS Users

Beamline U1A

- S Bocharov, Z Zhang, T Beebe, Jr., A Teplyakov. Structure of a Thin Barrier Film Deposited from Tetrakis-(dimethylamino)-Titanium onto a Si(100)-2x1 Substrate. *Thin Solid Films*. **471** (1-2), 159-165 (2005).
- G Hahner, M Zwahlen, W Caseri. Solvent Dependence of the Molecular Order in Ion-Exchanged Self-Assembled dialkylammonium Monolayers on Mica Studied with Soft X-ray Absorption. *J. Colloid Interface Sci.* **291** (1), 45-52 (2005).
- G Hahner, M Zwahlen, W Caseri. Chain-Length Dependence of the Conformational Order in Self-Assembled Dialkylammonium Monolayers on Mica Studied with Soft X-ray Absorption. *Langmuir*. **21**, 1424-1427 (2005).
- J Horn, Z Song, D Potapenko, J Hrbek, M White. Characterization of Molybdenum Carbide Nanoparticles Formed on Au(111) Using Reactive-Layer Assisted Deposition. *J. Phys. Chem. B*. **109**, 44-47 (2005).
- H Hwu, M Zellner, J Chen. The Chemical and Electronic Properties of Oxygen-Modified C/Mo(110): A Model System for Molybdenum Oxy-carbides. *J. Catal.* **229**, 30-44 (2005).
- G Liu, S Natarajan, S Kim. Photochemical Production of Oligothiophene and Polythiophene Micropatterns from 2,5-diiodothiophene on Au in UHV. *Surf. Sci.* **592** (1-3), L305-L309 (2005).
- K Rao, D Kumaran, T Binz, S Swaminathan. Structural Analysis of the Catalytic Domain of Tetanus Neurotoxin. *Toxicon*. **45** (7), 929-939 (2005).
- M Sahiner, D Downey, S Novak, J Woicik, D Arena. The Local Structural Characterization of the Inactive Clusters in B, Bf2 and B23 Implanted Si Wafers using X-ray Techniques. *Microelectr. J.* **36**, 522-526 (2005).

Beamline U2A

- R Hemley, H Mao, V Struzhkin. Synchrotron Radiation and High Pressure: New Light on Materials Under Extreme Conditions. *J. Synch. Rad.* **12**, 135-154 (2005).
- M Koch-Müller, P Dera, Y Fei, H Hellwig, Z Liu, J Van Orman, R Wirth. Polymorphic Phase Transition in Superhydrous Phase B. *Phys. Chem. Miner.* **32** (5-6), 349-361 (2005).
- G Lager, W Marshall, Z Liu, R Downs. Re-Examination of the Hydrogarnet Structure at High Pressure using Neutron Powder Diffraction and Infrared Spectroscopy. *Am. Mineral.* **90**, 639 (2005).
- H Liu, J Tse, J Hu, Z Liu, L Wang, J Chen, D Weidner, Y Meng, D Hausermann, H Mao. Structural Refinement of the High-Pressure Phase of Aluminum Trihydroxide: In-Situ High-Pressure Angle Dispersive Synchrotron X-ray Diffraction and Theoretical Studies. *J. Phys. Chem. B*. **109**, 8857 (2005).
- J Lu, G Rozgonyi, A Schonecker, A Gutjahr, Z Liu. Impact of Oxygen on Carbon Precipitation in Polycrystalline Ribbon Silicon. *J. Appl. Phys.* **97**, 033509 (2005).
- Y Song, Z Liu, R Hemley, H Mao, D Herschbach. High-Pressure Vibrational Spectroscopy of Sulfur Dioxide. *J. Chem. Phys.* **122**, 174511 (2005).
- Y Song, R Hemley, H Mao, D Herschbach. Nitrogen-Containing Molecular Systems at High Pressures and Temperatures. *Chemistry under Extreme Conditions*, p. 189-222, Elsevier Science, St. Louis. (2005).

Beamline U2B

- K Dokken, L Davis, N Marinkovic. Synchrotron Radiation Fourier Infrared Microspectroscopy (SR-IMS) as a Tool to study the Fate and Transport of Organic contaminants in Plants. *Spectroscopy*. **20** (9), 14-20 (2005).
- K Dokken, L Davis, N Marinkovic. Use of Fourier Transform Infrared Microspectroscopy in Plant Growth and Development. *Appl. Spectrosc. Rev.* **40**, 1-26 (2005).
- K Dokken, L Davis, L Erickson, S Castro-Diaz, N Marinkovic. Synchrotron Fourier Transform Infrared Microspectroscopy: A New Tool to Monitor the Fate of Organic Contaminants in Plants. *Microchem. J.* **81** (1), 86-91 (2005).
- V Joshi, D Ramamurthy, R Powell, F Furuya, J Hainfeld. High Z Metal Carbonyls for Imaging and Microspectroscopy. *Microsc. Microanal.* **11** (S2), 974 (2005).
- J Joshi, D Ramamurthy, R Powell, F Furuya, J Hainfeld. High Z Metal Carbonyls for Imaging and Microscopy. *Microsc. Microanal.* **10**, 912 (2005).
- N Marinkovic, M Chance, K Dokken, L Davis, D Linkous, J Flinn. Synchrotron Infrared Spectroscopy at NSLS Beamline U2B. *Am. Biotechnol. Lab.* **23**, 12 (2005).
- N Marinkovic, S Gupta, C Zhan, M Chance. Synchrotron Radiation in Biosciences. *Nucl. Instrum. Meth. B*. **241** (1-4), 242-246 (2005).
- L Pietrzak, S Miller. Microchemical Structure of Soybean Seeds Revealed in Situ by Ultraspatially Resolved Synchrotron Fourier Transformed Infrared Microspectroscopy. *J. Agr. Food Chem.* **53** (24), 9304-9311 (2005).
- M Shao, J Warren, N Marinkovic, P Faguy, R Adzic. In-Situ ATR-SEIRAS Study of Electrooxidation of Dimethyl Ether on a Pt Electrode in Acid Solutions. *Electrochem. Commun.* **7**, 459 (2005).
- D Wetzel, G Post, R Lodder. Synchrotron Infrared Microspectroscopic Analysis of Collagens I, III, and Elastin on the Shoulders of Human Thin-Cap Fibroatheromas. *Vib. Spectrosc.* **38** (1-2), 53-59 (2005).
- P Yu. Molecular Chemistry Imaging to Reveal Structural Features of Various Plant Feed Tissues. *J. Struct. Biol.* **150** (1), 81-89 (2005).
- P Yu. Application of Cluster Analysis (CLA) in Feed Chemical Imaging to Accurately Reveal Structural-Chemical Features of Feeds within Cellular Dimension. *J. Agr. Food Chem.* **53** (8), 2872-2880 (2005).
- P Yu. Applications of Cluster Analysis (CLA) and Principal Component Analysis (PCA) in Feed Structure and Feed Molecular Chemistry Research, Using Synchrotron-Based FTIR Microspectroscopy. *J. Agr. Food Chem.* **53**, 7115-7127 (2005).
- P Yu, C Christensen, J McKinnon, D Christensen. Ultrastructural-Chemical Makeup of Yellow- (Brassica Rapa) and Brown-Seeded (Brassica Napus) Canola within Cellular Dimensions, Explored with Synchrotron Reflection FTIR Microspectroscopy. *Can. J. Plant. Sci.* **85**, 533-541 (2005).

Beamline U4A

- A Chan, G Wertheim, H Wang, M Ulrich, J Rowe, T Madey. Surface Atom Core-Level Shifts of Clean and Oxygen-Covered Re(1231). *Phys. Rev. B*. **72**, 035442 (2005).
- L Webb, E Nemanick, J Biteen, D Knapp, D Michalak, M Traub, A Chan, B Brunschwig, N Lewis. High-Resolution X-ray Photoelectron Spectroscopic Studies of Alkylated Silicon(111) Surfaces. *J. Phys. Chem. B*. **109**, 3930-3937 (2005).
- A Yang, Z Chen, X Zuo, D Arena, J Kirkland, C Vittoria, V Harris.

Cation-Disorder-Enhanced Magnetization in Pulsed-Laser-Deposited CuFe₂O₄ Films. *Appl. Phys. Lett.* **86**, 252510 (2005).

Beamline U4B

- J Dvorak, Y Idzerda, D Arena, Y Zhao, S Ogale, T Wu, T Venkatesan, R Godfrey, R Ramesh. Are Strain-Induced Effects Truly Strain Induced? A Comprehensive Study of Strained LCMO Thin Films. *J. Appl. Phys.* **97**, 10C102 (2005).
- T Funk, A Deb, S George, H Wang, S Cramer. X-ray Magnetic Circular Dichroism-A High Energy Probe of Magnetic Properties. *Coordin. Chem. Rev.* **249**, 3-30 (2005).
- Y Guan, Z Dios, D Arena, L Cheng, W Bailey. Transmission-Mode X-ray Magnetic Circular Dichroism Characterization of Moment Alignment in Tb-Doped Ni₈₁Fe₁₉. *J. Appl. Phys.* **97**, 10A719 (2005).
- A Lussier, J Dvorak, Y Idzerda, S Shinde, S Ogale, T Venkatesan. XAS Characterization of Growth Parameter Effects for Pulsed Laser Deposited Co_xTi_{1-x}O₂? Films. *Phys. Scr.* **T115**, 623-625 (2005).
- C Marrows, P Steadman, A Hampson, L Michez, B Hickey, N Telling, D Arena, J Dvorak, S Langridge. Probing Magnetic Ordering in Multilayers using Soft X-ray Resonant Magnetic Scattering. *Phys. Rev. B: Condens. Matter* **72**, 024421 (2005).
- L Michez, C Marrows, P Steadman, B Hickey, D Arena, J Dvorak, H Zhang, D Bucknall, S Langridge. Resonant X-ray Scattering from a Magnetic Multilayer Reflection Grating. *Appl. Phys. Lett.* **86**, 112502 (2005).
- E Negusse, Y Idzerda. Extraction of Roughness Parameters from Specular X-ray Resonant Scattering. *J. Appl. Phys.* **97**, 10C901 (2005).
- S Stadler, D Minott, D Harley, J Craig, M Khan, I Dubenko, N Ali, K Story, J Dvorak, et al.. Element-Specific Magnetic Properties of Co₂MnSi Thin Films. *J. Appl. Phys.* **97**, 10C302 (2005).

Beamline U4IR

- X Hu, C Hirschmugl. Long-Range Metal-Mediated Interactions Between S and CO on Cu(100). *Phys. Rev. B* **72**, 205439 (2005).
- O Mercier, R Buckley, H Trodahl, C Bernhard, G Balakrishnan. Low-Energy Excitations in La_{1.2}Sr_{1.8}Mn₂O₇ Investigated by Ellipsometry. *Phys. Rev. B* **72**, 214437 (2005).

Beamline U5UA

- E Vescovo, H Kim, J Ablett, S Chambers. Spin-polarized Conduction in Localized Ferromagnetic Materials: The Case of Fe₃O₄ on MgO(100). *J. Appl. Phys.* **98**, 084507 (2005).

Beamline U7A

- L Andruzzi, W Senaratne, A Hexemer, E Sheets, B Ilic, E Kramer, B Baird, C Ober. Oligo(ethylene glycol) Containing Polymer Brushes as Bioselective Surfaces. *Langmuir* **21**, 2495-2504 (2005).
- S Banerjee, T Hemraj-Benny, S Sambasivan, D Fischer, J Misewich, S Wong. Near-Edge X-ray Absorption Fine Structure Investigations of Order in Carbon Nanotube-Based Systems. *J. Phys. Chem. B* **109** (17), 8489-8495 (2005).
- R Bhat, J Genzer. Using Spectroscopic Ellipsometry for Quick Prediction of Number Density of Nanoparticles Bound to Non-transparent Solid Surfaces. *Surf. Sci.* **596**, 187 (2005).
- R Bubeck, L Thomas, S Rendon, W Burghardt, A Hexemer, D

Fischer. Characterization of the Skin Orientation of Thermotropic Liquid-Crystalline Copolyester Moldings with Near-Edge X-ray Absorption Fine Structure. *J. Appl. Polym. Sci.* **98**, 2473-2480 (2005).

- R Bubeck, P Dvornic, J Hu, A Hexemer, X Li, S Keinath, D Fischer. Near Edge X-ray Absorption Fine Structure (NEXAFS) Studies of Copper Ion-Containing PAMAMOS Dendrimer Networks. *Macromol. Chem. Phys.* **206**, 1146 - 1153 (2005).
- D Burnett, A Gabelnick, D Fischer, A Marsh, J Gland. Mechanism of Acetylene Oxidation on the Pt(111) Surface using in situ Fluorescence Yield Near-Edge Spectroscopy. *J. Catal.* **230**, 282-290 (2005).
- D Burnett, A Gabelnick, D Fischer, A Marsh, J Gland. In Situ Soft X-ray Studies of Ethylene Oxidation Mechanisms and Intermediates on the Pt(111) Surface. *J. Phys. Chem. B* **109**, 5659-5666 (2005).
- C Cox, D Fischer, W Schwartz, Y Song. Improvements in the Low Energy Collection Efficiency of Si(Li) X-ray Detectors. *Nucl. Instrum. Meth. B* **241** (1-4), 436-440 (2005).
- D DeLongchamp, S Sambasivan, D Fischer, E Lin, P Chang, A Murphy, J Frechet, V Subramanian. Direct Correlation of Organic Semiconductor Film Structure to Field-Effect Mobility. *Advanced Materials* **17**, 2334-2338 (2005).
- D DeLongchamp, E Lin, D Fischer. Organic Semiconductor Structure and Chemistry from Near-Edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy. *SPIE Organic Thin Film Transistors IV*, Vol 5940, p. 54-64, sponsored by SPIE - The International Society for Optical Engineering. (2005).
- D DeLongchamp, B Vogel, Y Jung, M Gurau, C Richter, O Kirillov, J Obrzut, D Fischer, S Sambasivan, et al.. Variations in Semiconducting Polymer Microstructure and Hole Mobility with Spin-Coating Speed. *Chem. Mater.* **17** (23), 5610-5612 (2005).
- K Efimenko, J Crowe, E Manias, D Schwark, D Fischer, J Genzer. Rapid Formation of Soft Hydrophilic Silicone Elastomer Surfaces. *Polymer* **46**, 9329-9341 (2005).
- L Gamble, C Lee, G Harbers, P Gong, D Grainger, D Castner. Characterization of Surface order and Structure of Thiolated Single Stranded and Hybridized DNA. *Society for Biomaterials 30th Annual Meeting*, Vol , p. 121, sponsored by Society for Biomaterials. (2005).
- J Genzer. Templating Surfaces with Gradient Assemblies. *J. Adhes. Sci. Technol.* **81**, 417 (2005).
- T Hemraj-Benny, S Banerjee, S Sambasivan, D Fischer, W Han, J Misewich, S Wong. Investigating the Structure of Boron Nitride Nanotubes by Near-edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy. *Phys. Chem. Chem. Phys.* **6**, 1103-1106 (2005).
- D Krapchetov, H Ma, A Jen, D Fischer, Y Loo. Solvent-Dependent Assembly of Terphenyl- and Quaterphenyldithiol on Gold and Gallium Arsenide. *Langmuir* **21**, 5887-5893 (2005).
- J Lenhart, D Fischer, S Sambasivan, E Lin, R Jones, C Soles, W Wu, D Goldfarb, M Angelopoulos. X-ray Absorption Spectroscopy to Probe Surface Composition and Surface Deprotection in Photoresist Films. *Langmuir* **21**, 4007-4015 (2005).
- H Lewis, D Burnett, A Gabelnick, D Fischer, J Gland. Enhanced Low-Temperature CO Oxidation on a Stepped Platinum Surface for Oxygen Pressures Above 10⁻⁵ Torr. *J. Phys. Chem. B* **109**, 21847-21857 (2005).
- A Murphy, P Chang, P VanDyke, J Liu, J Frechet, V Subramanian, D DeLongchamp, S Sambasivan, D Fischer, E Lin. Self-Assembly, Molecular Ordering, and Charge Mobility in Solution-Processed Ultrathin Oligothiophene Films. *Chem. Mater.* **17**, 6033-6041 (2005).
- L Pattison, A Hexemer, E Kramer, P Petroff, D Fischer. Temperature Dependence of the Ordering of Semiconducting Fluorene-Thiophene Copolymers on Rubbed Polyimide Alignment Layers.

- Proc. SPIE Int. Soc. Opt. Eng.*, Vol , p. 5398, sponsored by Soc. Opt. Eng.. (2005).
- N Samuel. Structural Characterization of Adsorbed Helical and Beta-Sheet Peptides. Ph.D. Thesis. University of Washington, Seattle. (2005).
- J Sayan, N Nguyen, J Ehrstein, D Yoder, I Levin, D Fischer, M Paunescu, O Celik, E Garfunkel. Effect of Nitrogen on Band Alignment in HfSiON Gate Dielectrics. *Appl. Phys. Lett.* **87**, 212905-3 (2005).
- W Yoon, M Balasubramanian, K Chung, X Yang, J McBreen, C Grey, D Fischer. Investigation of the Charge Compensation Mechanism on the Electrochemically Li-Ion Deintercalated Li_{1-x}Co_{1/3}Ni_{1/3}Mn_{1/3}O₂ Electrode System by Combination of Soft and Hard X-ray Absorption Spectroscopy. *J. Am. Chem. Soc.* **127** (49), 17479-17487 (2005).
- X Zhao, P Liu, J Hrbek, J Rodriguez, M Perez. The Chemisorption of SO₂ on the Cu/Au (1 1 1) Surface: Interplay Between Ensemble and Electronic Effects. *Surf. Sci.* **592** (1-3), 25-36 (2005).
- X Zhao, J Hrbek, J Rodriguez. The Decomposition and Chemistry of Ru₃(CO)₁₂ on TiO₂(110) Studied with X-ray Photoelectron Spectroscopy and Temperature Programmed Desorption. *Surf. Sci.* **575**, 115-124 (2005).

Beamline U9B

- S Badre, C Goncalves, K Norinaga, G Gustavson, O Mullins. Molecular Size and Weight of Asphaltene and Asphaltene Solubility Fractions from Coals, Crude Oils and Bitumen. *Fuel* **85** (1), 1-11 (2005).
- Y Nie, S Vignes, J Hobbs, G Conn, S Munger. Distinct Contributions of T1R2 and T1R3 Taste Receptor Subunits to the Detection of Sweet Stimuli. *Curr. Biol.* **15** (21), 1948-1952 (2005).
- B Wallace. Shining New Light on Protein Structure and Function thru Synchrotron Radiation Circular Dichroism (SRCD) Spectroscopy. *Aust. Biochem.* **35**, 47-50 (2005).
- F Wien, A Miles, J Lees, S Vronning Hoffmann, B Wallace. VUV Irradiation Effects on Proteins in High-Flux Synchrotron Radiation Circular Dichroism Spectroscopy. *J. Synch. Rad.* **12**, 517-523 (2005).
- F Wien, A Miles, J Lees, A Cuff, R Janes, B Wallace. A New Circular Dichroism Reference Dataset Covering Fold Space. *Biophysical Journal*, Vol 88, p. 554a, (2005).

Beamline U10A

- S Dordevic, C Homes, J Tu, T Valla, M Strongin, P Johnson, G Gu, D Basov. Extracting the Electron-Boson Spectral Function $\alpha^2F(\omega)$ from Infrared and Photoemission Data using Inverse Theory. *Phys. Rev. B: Condens. Matter* **71**, 104529 (2005).
- C Homes. Scaling Laws in High-Temperature Superconductors as Revealed through Infrared Spectroscopy. *Synch. Rad. News* **18** (3), 9-14 (2005).
- I Kezsmarki, G Mihaly, R Gaal, N Barisic, H Berger, L Forro, C Homes, L Mihaly. Pressure-induced Suppression of the Spin-Gapped Insulator Phase in BaVS₃: An Infrared Optical Study. *Phys. Rev. B* **71**, 193103 (2005).
- J Kim, S Oh, Y Lee, E Choi, C Homes, J Rhyee, B Cho. Optical Spectroscopy Study on the electronic Structure of Eu_xCa_{1-x}B₆. *Phys. Rev. B* **71**, 075105 (2005).
- R Lobo, J LaVeigne, D Reitze, D Tanner, Z Barber, E Jacques, P Bosland, M Burns, G Carr. Photoinduced Time-Resolved Electrodynamics of Superconducting Metals and Alloys. *Phys. Rev. B* **72**, 024510 (2005).
- S Miller, L Pietrzak. Preparation of Soybean Seed Samples for FT-

IR Microspectroscopy. *Biotech. Histochem.* **80** (3-4), 117-121 (2005).

- A Zimmers, J Tomczak, R Lobo, N Bontemps, C Hill, M Barr, Y Dagan, R Greene, A Millis, C Homes. Infrared Properties of Electron-Doped Cuprates: Tracking Normal-State Gaps and Quantum Critical Behavior in Pr_{2-x}Ce_xCuO₄. *Europhys. Lett.* **70** (2), 225-231 (2005).

Beamline U10B

- S Chakraborty, B Sahoo, I Teraoka, L Miller, R Gross. Enzyme-Catalyzed Regioselective Modification of Starch Nanoparticles. *Macromolecules* **38** (1), 61-68 (2005).
- V Joshi, D Ramamurty, R Powell, F Furuya, J Hainfeld. High Z Metal Carbonyls for Imaging and Microspectroscopy. *Microsc. Microanal.* **11** (S2), 974 (2005).
- J Lehmann, B Liang, D Solomon, M Lerotic, F Luizao, J Kinyangi, T Schäfer, S Wirick, C Jacobsen. Near-Edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy for Mapping Nano-Scale Distribution of Organic Carbon Forms in Soil: Application to Black Carbon Particles. *Global Biogeochem. Cy.* **19**, GB1013 (2005).
- L Miller, R Smith. Synchrotrons Versus Globars, Point-Detectors Versus Focal Plane Arrays: Selecting the Best Source and Detector for Specific Infrared Microspectroscopy and Imaging Applications. *Vib. Spectrosc.* **38** (1-2), 237-240 (2005).
- S Miller, L Pietrzak. Preparation of Soybean Seed Samples for FT-IR Microspectroscopy. *Biotech. Histochem.* **80** (3-4), 117-121 (2005).
- M Petra, J Anastassopoulou, T Theologis, T Theophanides. Synchrotron Micro-FT-IR Spectroscopic Evaluation of Normal Paediatric Human Bone. *J. Mol. Struct.* **733**, 101-110 (2005).
- L Pietrzak, S Miller. Microchemical Structure of Soybean Seeds Revealed in Situ by Ultraspatially Resolved Synchrotron Fourier Transformed Infrared Microspectroscopy. *J. Agr. Food Chem.* **53** (24), 9304-9311 (2005).
- D Solomon, J Lehmann, J Kinyangi, B Liang, T Schäfer. Carbon K-Edge NEXAFS and FTIR-ATR Spectroscopic Investigations of Organic Carbon Speciation in Soils. *Soil Sci. Soc. Am. J.* **69**, 107-119 (2005).
- T Telivala, L Miller. Effect of Metal Ions on the Secondary Structure of Amyloid beta (Ab) in Alzheimer's disease. Masters Thesis. SUNY at Stony Brook, Stony Brook. (2005).
- Q Wang, A Kretlow, M Beekes, D Naumann, L Miller. In Situ Characterization of Prion Protein Structure and Metal Accumulation in Scrapie-Infected Cells by Synchrotron Infrared and X-ray Imaging. *Vib. Spectrosc.* **38**, 61-69 (2005).
- Q Wang, W Sanad, L Miller, A Voigt, K Klingel, R Kandolf, K Stangl, G Baumann. Infrared Imaging of Compositional Changes in Inflammatory Cardiomyopathy. *Vib. Spectrosc.* **38**, 217-222 (2005).
- B Wood, K Bamberg, L Miller, M Quinn, L Chiriboga, M Diem, D McNaughton. Infrared Imaging of Normal and Diseased Cervical Tissue Sections. *Biomedical Applications of Micro- and Nanoengineering II*, Vol 5651, p. 78-84, sponsored by SPIE--The International Society for Optical Engineering. (2005).
- P Yu, R Wang, Y Bai. Reveal Protein Molecular Structural-Chemical Differences Between Two Types of Winterfat (Forage) Seeds with Physiological Differences in Low Temperature Tolerance Using Synchrotron-Based Fourier Transform Infrared Microspectroscopy. *J. Agr. Food Chem.* **53**, 9297-9303 (2005).
- P Yu. Application of Cluster Analysis (CLA) in Feed Chemical Imaging to Accurately Reveal Structural-Chemical Features of Feeds within Cellular Dimension. *J. Agr. Food Chem.* **53** (8), 2872-2880 (2005).

- P Yu. Molecular Chemistry Imaging to Reveal Structural Features of Various Plant Feed Tissues. *J. Struct. Biol.* **150** (1), 81-89 (2005).
- P Yu. Applications of Cluster Analysis (CLA) and Principal Component Analysis (PCA) in Feed Structure and Feed Molecular Chemistry Research, Using Synchrotron-Based FTIR Microspectroscopy. *J. Agr. Food Chem.* **53**, 7115-7127 (2005).
- P Yu, C Christensen, J McKinnon, D Christensen. Ultrastructural-Chemical Makeup of Yellow- (Brassica Rapa) and Brown-Seeded (Brassica Napus) Canola within Cellular Dimensions, Explored with Synchrotron Reflection FTIR Microspectroscopy. *Can. J. Plant. Sci.* **85**, 85: 533-541 (2005).

Beamline U11

- A Miles, F Wien, J Lees, B Wallace. Calibration and Standardisation of Synchrotron Radiation and Conventional Circular Dichroism Spectrometers. Part 2: Factors Affecting Magnitude and Wavelength. *Spectroscopy*. **19**, 43-51 (2005).
- Y Nie, S Vignes, J Hobbs, G Conn, S Munger. Distinct Contributions of T1R2 and T1R3 Taste Receptor Subunits to the Detection of Sweet Stimuli. *Curr. Biol.* **15** (21), 1948-1952 (2005).
- B Wallace. Shining New Light on Protein Structure and Function thru Synchrotron Radiation Circular Dichroism (SRCD) Spectroscopy. *Aust. Biochem.* **35**, 47-50 (2005).
- F Wien, A Miles, J Lees, A Cuff, R Janes, B Wallace. A New Circular Dichroism Reference Dataset Covering Fold Space. *Biophysical Journal*, Vol 88, p. 554a, (2005).

Beamline U12A

- S Senanayake, G Waterhouse, H Idriss, T Madey. Coupling of Carbon Monoxide Molecules over Oxygen Defected UO₂ (111) Single Crystal and Thin Film Surfaces. *Langmuir*. **21**, 11141-11145 (2005).

Beamline U12IR

- R Lobo, J LaVeigne, D Reitze, D Tanner, Z Barber, E Jacques, P Bosland, M Burns, G Carr. Photoinduced Time-Resolved Electrodynamics of Superconducting Metals and Alloys. *Phys. Rev. B*. **72**, 024510 (2005).

Beamline U13UB

- S Dordevic, C Homes, J Tu, T Valla, M Strongin, P Johnson, G Gu, D Basov. Extracting the Electron-Boson Spectral Function $\alpha^2F(\omega)$ from Infrared and Photoemission Data using Inverse Theory. *Phys. Rev. B: Condens. Matter*. **71**, 104529 (2005).
- P Glans, T Learmonth, K Smith, T Valla, P Johnson, S Hulbert, W McCarroll, M Greenblatt. Charge-Density-Wave Gap in the Quasi-Two-Dimensional Conductor Na_{0.9}Mo₆O₁₇ Measured by Angle-Resolved Photoemission Spectroscopy. *Phys. Rev. B*. **72**, 035115 (2005).
- T Kidd, T Valla, A Fedorov, P Johnson, R Cava, M Haas. Orbital Dependence of the Fermi Liquid State in Sr₂RuO₄. *Phys. Rev. Lett.* **94**, 107003 (2005).
- M Kralj. Hybridization Schemes for Ag Films on V(1 0 0). *Surf. Sci.* **599** (1-3), 150-159 (2005).
- T Valla. Electronic Interactions in Strongly Correlated Systems: What is the Glue for High Temperature Superconductivity?. *Proceedings of the SPIE, Strongly Correlated Electron Materials: Physics and Nanoengineering*, Vol 5932, p. 5932-03, sponsored by SPIE-The International Society for Optical Engineering. (2005).

Beamline X1A1

- A Bauer, T Rabung, F Claret, T Schäfer, G Buckau, T Fanghänel. Influence of Temperature on Sorption of Europium onto Smectite: The Role of Organic Contaminants. *Appl. Clay Sci.* **30** (1), 1-10 (2005).
- A Braun, N Shah, F Huggins, K Kelly, A Sarofim, C Jacobsen, S Wirick, H Francis, J Havsky, et al.. X-ray Scattering and Spectroscopy Studies on Diesel Soot from Oxygenated Fuel Under Various Engine Load Conditions. *Carbon*. **43** (12), 2588-2599 (2005).
- A Braun, F Huggins, N Shah, Y Chen, S Wirick, S Mun, C Jacobsen, G Huffman. Advantages of soft X-ray Absorption over TEM-EELS for Solid Carbon Studies - a Comparative Study on Diesel Soot with EELS and NEXAFS. *Carbon*. **43**, 117-124 (2005).
- F Claret, T Schäfer, T Rabung, M Wolf, A Bauer, G Buckau. Differences in Properties and Cm(III) Complexation Behavior of Isolated Humic and Fulvic Acid Derived from Opalinus Clay and Callovo-Oxfordian Argillite. *Appl. Geochem.* **20** (6), 1158-1168 (2005).
- M Haming. Spectroscopy on Poly-L-Lysine and Spectromicroscopy Study on Biomineralized Proteins in Jaws of Glycera Dibranchiata. M.A. Thesis. SUNY at StonyBrook, StonyBrook. (2005).
- R Kretzschmar, T Schäfer. Metal Retention and Transport on Colloidal Particles in the Environment. *Elements*. **1** (4), 205-210 (2005).
- J Lehmann, B Liang, D Solomon, M Lerotic, F Luizao, J Kinyangi, T Schäfer, S Wirick, C Jacobsen. Near-Edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy for Mapping Nano-Scale Distribution of Organic Carbon Forms in Soil: Application to Black Carbon Particles. *Global Biogeochem. Cy.* **19**, GB1013 (2005).
- M Lerotic, C Jacobsen, J Gillow, A Francis, S Wirick, S Vogt, J Maser. Cluster Analysis in Soft X-ray Spectromicroscopy: Finding the Patterns in Complex Specimens. *J. Electron. Spectrosc. Relat. Phenom.* **144-147**, 1137-1143 (2005).
- M Lerotic. Finding Patterns in Complex Specimens by Improving the Acquisition and Analysis of X-ray Spectromicroscopy Data. Ph.D. Thesis. SUNY at StonyBrook, StonyBrook. (2005).
- D Mancosky, L Lucia, H Nanko, S Wirick, A Rudie, R Braun. Novel Visualization Studies of Lignocellulosic Oxidation Chemistry by Application of C-near Edge X-ray Absorption Fine Structure Spectroscopy. *Cellulose*. **12**, 35-41 (2005).
- M Plaschke, J Rothe, M Altmaier, M Denecke, T Fanghaenel. Near Edge X-ray Absorption Fine Structure (NEXAFS) of model compounds for the humic acid / actinide ion interaction. *J. Electron. Spectrosc. Relat. Phenom.* **148**, 151-157 (2005).
- T Schäfer, G Buckau, R Artinger, J Kim, S Geyer, M Wolf, W Bleam, S Wirick, C Jacobsen. Origin and Mobility of Fulvic Acids in the Gorleben Aquifer: Implications from Isotopic Data and Carbon/Sulfur XANES. *Org. Geoch.* **36**, 567-582 (2005).
- T Schäfer, F Claret, M Lerotic, G Buckau, T Rabung, A Bauer, C Jacobsen. Source Identification and Characterization of Humic and Fulvic Acids Isolated from Oxfordian Argillite and Opalinus Clay. *Humic Substances: Molecular Details and Applications in Land and Water Conservation*, p. 43-62, Tayloe and Francis, Inc., New York. (2005).
- M Schumacher. Microheterogeneity of Soil Organic Matter investigated by C-1s NEXAFS Spectroscopy and X-ray Microscopy. Ph.D. Thesis. Swiss Federal Institute of Technology Zurich, Zurich. (2005).
- M Schumacher, I Christl, A Scheinost, C Jacobsen, R Kretzschmar. Chemical Heterogeneity of Organic Soil Colloids Investigated by

- Scanning Transmission X-ray Microscopy and C-1s NEXAFS Microspectroscopy. *Environ. Sci. Tech.* **39** (23), 9094-9100 (2005).
- D Solomon, J Lehmann, J Kinyangi, B Liang, T Schäfer. Carbon K-Edge NEXAFS and FTIR-ATR Spectroscopic Investigations of Organic Carbon Speciation in Soils. *Soil Sci. Soc. Am. J.* **69**, 107-119 (2005).

Beamline X1A2

- M Haming. Spectroscopy on Poly-L-Lysine and Spectromicroscopy Study on Biomineralized Proteins in Jaws of Glycera Dibranchiata. M.A. Thesis. SUNY at StonyBrook, StonyBrook. (2005).
- M Lerotic. Finding Patterns in Complex Specimens by Improving the Acquisition and Analysis of X-ray Spectromicroscopy Data. PH.D. Thesis. SUNY at StonyBrook, StonyBrook. (2005).
- T Schäfer, F Claret, M Lerotic, G Buckau, T Rabung, A Bauer, C Jacobsen. Source Identification and Characterization of Humic and Fulvic Acids Isolated from Oxfordian Argillite and Opalinus Clay. *Humic Substances: Molecular Details and Applications in Land and Water Conservation*, p. 43-62, Tayloe and Francis, Inc., New York. (2005).
- D Shapiro, P Thibault, T Beetz, V Elser, M Howells, C Jacobsen, J Kirz, E Lima, H Miao, et al.. Biological Imaging by Soft X-ray Diffraction Microscopy. *Proc Natl Acad Sci USA*. **102** (43), 15343-15346 (2005).

Beamline X1B

- C McGuinness, J Downes, P Sheridan, P Glans, K Smith, W Si, P Johnson. X-ray Spectroscopic Study of the Electronic Structure of the High-Dielectric-Constant Material $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$. *Phys. Rev. B*. **71**, 195111 (2005).
- A Rüdel, U Hergenhan, K Maier, E Rennie, O Kugeler, J Viehhaus, P Lin, R Lucchese, A Bradshaw. Exchange Interaction Effects in NO Core Level Photoionization Cross Sections. *New J. Phys.* **7**, 189 (2005).
- C Schubler-Langeheine, J Schlappa, A Tanaka, Z Hu, C Chang, E Schierle, M Benomar, H Ott, E Weschke, et al.. Spectroscopy of Stripe Order in $\text{La}_{1.8}\text{Sr}_{0.2}\text{NiO}_4$ Using Resonant Soft X-Ray Diffraction. *Phys. Rev. Lett.* **95**, 156402 (2005).
- Y Zhang, S Wang, T Learmonth, L Plucinski, A Matsuura, S Bernardis, C O'Donnell, J Downes, K Smith. Electronic Excitations in Vanadium Oxide Phthalocyanine Studied via Resonant Soft X-ray Emission and Resonant Inelastic X-ray Scattering. *Chem. Phys. Lett.* **413** (1-3), 95-99 (2005).

Beamline X2B

- J Borah, E Ritman, T Dufresne, S Jorgensen, S Liu, J Sacha, R Phipps, R Turner. The Effect of Risdronate on Bone Mineralization as Measured by Micro-Computed Tomography with Synchrotron Radiation: Correlation to Histomorphometric Indices of Turnover. *Bone*. **37** (1), 1-9 (2005).

Beamline X3A1

- P Coppens, I Vorontsov, T Graber, M Gembicky, A Kovalevsky. The Structure of Short-Lived Excited States of Molecular Complexes by Time-Resolved X-ray Diffraction. *Acta Cryst. A*. **61**, 162-172 (2005).
- R Poulsen, A Bentien, M Chevalier, B Iverson. Synthesis, Physical Properties, Multitemperature Crystal Structure, and 20 K Synchrotron X-ray Charge Density of a Magnetic Metal Organic

Framework Structure, $\text{Mn}_3(\text{C}_8\text{O}_4\text{H}_4)_3(\text{C}_5\text{H}_{11}\text{ON})_2$. *J. Am. Chem. Soc.* **127**, 9156-9166 (2005).

Beamline X3A2

- D Dikovsky, G Marom, C Avila-Orta, R Somani, B Hsiao. Shear-Induced Crystallization in Isotactic Polypropylene Containing Ultra-High Molecular Weight Polyethylene Oriented Precursor Domains. *Polymer*. **46** (9), 3096-3104 (2005).
- K Fukukawa, L Zhu, P Gopalan, M Ueda, S Yang. Synthesis and Characterization of Silicon-Containing Block Copolymers from Nitroxide-Mediated Living Free Radical Polymerization. *Macromolecules*. **38**, 263-270 (2005).
- G Gemeinhardt, R Moore. Characterization of Ionomer-Compatible Blend Morphology Using Synchrotron Small-Angle X-ray Scattering. *Macromolecules*. **38**, 2813-2819 (2005).
- D Kawakami, B Hsiao, C Burger, S Ran, C Avila-Orta, I Sics, T Kikutani, K Jacob, B Chu. Deformation-Induced Phase Transition and Superstructure Formation in Poly(ethylene terephthalate). *Macromolecules*. **38**, 91-103 (2005).
- J Keum, R Somani, F Zuo, C Burger, I Sics, B Hsiao, H Chen, R Kolb, C Lue. Probing Flow-Induced Precursor Structures in Blown Polyethylene Films by Synchrotron X-rays During Constrained Melting. *Macromolecules*. **38**, 5128-5136 (2005).
- J Miao, G Xu, L Zhu, L Tian, K Urich, C Avila-Orta, B Hsiao, M Utz. Chain-folding and Overall Molecular Conformation in a Novel Amphiphilic Starlike Macromolecule. *Macromolecules*. **38**, 7074-7082 (2005).
- S Poompradub, M Tosaka, S Kohjiya, Y Ideda, S Toki, I Sics, B Hsiao. Mechanism of Strain-Induced Crystallization in Filled and Unfilled Natural Rubber Vulcanizates. *J. Appl. Phys.* **97**, 103529 (2005).
- R Somani, L Yang, B Hsiao, T Sun, N Pogodina, A Lustiger. Shear-Induced Molecular Orientation and Crystallization in Isotactic Polypropylene: Effects on the Deformation Rate and Strain. *Macromolecules*. **38**, 1244-1255 (2005).

Beamline X3B1

- C Blome, T Tschentscher, J Davaasambuu, P Durand, S Techert. Femtosecond Time-Resolved Powder Diffraction Experiments using Hard X-ray Free-Electron Lasers. *J. Synch. Rad.* **12**, 812-819 (2005).
- L Chi, I Swainson, L Cranswick, J Her, P Stephens, O Knop. The Ordered Phase of Methylammonium Lead Chloride $\text{CH}_3\text{ND}_3\text{PbCl}_3$. *J. Solid State Chem.* **178** (5), 1376-1385 (2005).
- O Chmaissem, B Dabrowski, S Kolesnik, J Mais, J Jorgenson, S Short, C Botez, P Stephens. Effects of A-Site Ordering on the Structures and Properties of $\text{La}_{1-x}\text{Ba}_x\text{MnO}_3$ ($x \sim 0.5$). *Phys. Rev. B*. **72**, 104426 (2005).
- L Hildebrandt, R Dinnebier, M Jansen. Crystal Structure and Ionic Conductivity of Cesium Trifluoromethyl Sulfonate, CsSO_3CF_3 . *Z. Anorg. Allg. Chem.* **631**, 1660-1666 (2005).
- A Huq, P Stephens. Transition Temperatures and Vacancies in Superconducting $\text{Rb}[\text{sub } 3]\text{C}[\text{sub } 60]$. *Phys. Rev. B: Condens. Matter*. **72**, 092511 (2005).
- C Kenney, Y Maham, A Nelson. Characterization of Monofunctional $\text{ZrO}_2\text{-MnO}_3$ Catalysts for Methylcyclopentane Conversion. *Thermochim. Acta*. **434** (1-2), 55-61 (2005).
- J Majzlan, C Botez, P Stephens. The Crystal Structure of Synthetic $\text{Fe}_2(\text{SO}_4)_3(\text{H}_2\text{O})_5$ and the type specimen of lausenite. *Am. Mineral.* **90**, 411-416 (2005).
- M Navarro, E Pannunzio-Miner, S Pagola, M Gomex, R Carbonio.

- Structural Refinement of Nd[Fe(CN)₆] 4H₂O and Study of NdFeO₃ Obtained by its Oxidative Thermal Decomposition at Very Low Temperatures. *J. Solid State Chem.* **178** (3), 847-854 (2005).
- I Schottenfeld, A Benesi, P Stephens, G Chen, P Eklund, T Mallouk. Structural Analysis and Characterization of Layer Perovskite Oxynitrides made from Dion-Jacobson oxide precursors. *J. Solid State Chem.* **178**, 2313-2321 (2005).
- A van der Lee, P Richez, C Tapiero. Crystal Structure of Nitarsone Determined from Synchrotron X-ray Powder Diffraction Data. *J. Mol. Struct.* **743**, 223-228 (2005).
- R Von Dreele. Binding of N-acetylglucosamine Oligosaccharides to Hen Egg-White Lysozyme: A Powder Diffraction Study. *Acta Cryst. D* **61**, 22-32 (2005).
- P Whitfield, I Davidson, L Cranswick, I Swainson, P Stephens. Investigation of Possible Superstructure and Cation Disorder in the Lithium Battery Cathode Material Li Mn(1/3)Ni(1/3)Co(1/3)O(2) Using Neutron and Anomalous Dispersion Powder Diffraction. *Solid State Ionics*. **176**, 463-471 (2005).
- ### Beamline X4A
- J Avalos, K Bever, C Wolberger. Mechanism of Sirtuin Inhibition by Nicotinamide: Altering the NAD⁺ Cosubstrate Specificity of a Sir2 Enzyme. *Mol. Cell*. **17** (6), 855-868 (2005).
- P Bachhawat. Regulation In The OmpR/PhoB Family of Response Regulators. PhD Thesis. Graduate School of Biomedical Sciences, University of Medicine and Dentistry, NJ and Rutgers University, NJ, Piscataway. (2005).
- P Bachhawat, G Swapna, G Montelione, A Stock. Mechanism of activation for transcription factor PhoB suggested by different modes of dimerization in the inactive and active states. *Structure*. **13** (9), 1353-1363 (2005).
- A Banerjee, W Yang, M Karplus, G Verdine. Structure of a Repair Enzyme Interrogating Undamaged DNA Elucidates Recognition of Damaged DNA. *Nature*. **434**, 612-618 (2005).
- S Bouyain, P Longo, S Li, K Ferguson, D Leahy. The Extracellular Region of ErbB4 Adopts a Tethered Conformation in the Absence of Ligand. *Proc Natl Acad Sci USA*. **102**, 15024-15029 (2005).
- R Depetris, J Hu, I Gimpelevich, L Holt, R Daly, S Hubbard. Structural Basis for Inhibition of the Insulin Receptor by the Adaptor Protein Grb14. *Mol. Cell*. **20** (2), 325-333 (2005).
- D Eckert, D Chan, V Malashkevich, P Carr, P Kim. Inhibitors of HIV Membrane Fusion. US Patent No. 6,841,657. (2005).
- Q Fan, W Hendrickson. Structure of Human Follicle-Stimulating Hormone in Complex with its Receptor. *Nature*. **433**, 269 (2005).
- F Forouhar, Y Yang, D Kumar, Y Chen, E Fridman, S Park, Y Chiang, T Acton, G Montelione, et al.. Structural and Biochemical Studies Identify Tobacco SABP2 as a Methyl Salicylate Esterase and Implicate it in Plant Innate Immunity. *Proc Natl Acad Sci USA*. **102**, 1773-1778 (2005).
- F Forouhar, I Lee, J Vujcic, S Vujcic, J Shen, S Vorobiev, R Xiao, T Acton, G Montelione, et al.. Structural and Functional Evidence for *Bacillus subtilis* PaiA as a Novel N1-spermidine/spermine acetyltransferase (SSAT). *J. Biol. Chem.* **280**, 40328-40336 (2005).
- H Furukawa, S Singh, R Mancusso, E Gouaux. Subunit Arrangement and Function in NMDA Receptors. *Nature*. **438**, 185-192 (2005).
- B Geisbrecht, B Hamakoa, B Perman, Z Zemla, D Leahy. The Crystal Structure of EAP Domains from *Staphylococcus Aureus* Reveal an Unexpected Hology to Bacterial Superantigens. *J. Biol. Chem.* **280**, 17243 (2005).
- J Gorman, L Shapiro. Crystal Structures of the Tryptophan Repressor binding Protein WrbA and complexes with Flavin Mononucleotide. *Protein Sci.* **14**, 3004-3012 (2005).
- S Hausmann, S Zheng, C Fabrega, S Schneller, C Lima, S Shuman. Encephalitozoon Cuniculi MRNA Cap (Guanine N-7) Methyltransferase: Methyl Acceptor Specificity, Inhibition by S-Adenosylmethionine Analogs, and Structure-Guided Mutational Analysis. *J. Biol. Chem.* **280**, 20404 (2005).
- W Hendrickson, X Jiang, K Langley, R Syed, Y Hsu. Conjugated Ligands for the Stimulation of blood Cell Proliferation by Effecting Dimerization of the Receptor for Stem Cell Factor. US Patent No. 6,904,369. (2005).
- J Hu, S Hubbard. Structural Characterization of a Novel Cbl Phosphotyrosine Recognition Motif in the APS Family of Adapter Proteins. *J. Biol. Chem.* **280** (19), 18943 (2005).
- O Ibrahimi, B Yeh, A Eliseenkova, F Zhang, S Olsen, M Igarashi, S Aaronson, R Linhardt, M Mohammadi. Analysis of Mutations in Fibroblast Growth Factor (FGF) and a Pathogenic Mutation in FGF Receptor (FGFR) Provides Direct Evidence for the Symmetric Two-End Model for FGFR Dimerization. *Mol. Cell. Bio.* **25**, 671-684 (2005).
- A Inanobe, H Furukawa, E Gouaux. Mechanism of Partial Agonist Action at the NR1 Subunit of NMDA Receptors. *Neuron*. **47**, 71-84 (2005).
- R Jin, S Clark, A Weeks, J Dudman, E Gouaux, K Partin. Mechanism of Positive Allosteric Modulators Acting on AMPA Receptors. *J. Neurosci.* **25**, 9027-9036 (2005).
- G Jogl, Y Hsiao, L Tong. Crystal Structure of Mouse Carnitine Octanoyltransferase and Molecular Determinants of Substrate Selectivity. *J. Biol. Chem.* **280**, 738 (2005).
- J Khan, B Dunn, L Tong. Crystal Structure of Human Taspase1, a Crucial Protease Regulating the Function of MLL. *Structure*. **13** (10), 1443-1452 (2005).
- L Lois, C Lima. Structures of the Small Ubiquitin-like Modifier E1 Activating Enzyme Provide Insights into SUMO Activation and the Mechanism for E2 Recruitment to E1. *EMBO J.* **24**, 439-451 (2005).
- A Malay, K Allen, D Tolan. Structure of the Thermolabile Mutant Aldolase B, A149P: Molecular Basis of Hereditary Fructose Intolerance. *J. Mol. Biol.* **347** (1), 135-144 (2005).
- A Marina, C Waldburger, W Hendrickson. Structure of the Entire Cytoplasmic Portion of a Sensor Histidine-kinase Protein. *EMBO J.* **24**, 1-13 (2005).
- E Michelotti, K Moffett, D Nguyen, M Kelly, R Shetty, X Chai, K Northrop, V Nambodiri, B Campbell, M Karpusas. Two Classes of p38 β MAP Kinase Inhibitors Having a Common Diphenylether Core but Exhibiting Divergent Binding Modes. *BioOrg. Med. Chem.* **15** (23), 5274-5279 (2005).
- R Olson, E Gouaux. Crystal Structure of the *Vibrio cholerae* Cytolysin (VCC) Pro-toxin and its Assembly into a Heptameric Transmembrane Pore. *J. Mol. Biol.* **350**, 997-1016 (2005).
- D Reverter, K Wu, T Gan-Erdene, Z Pan, K Wilkinson, C Lima. Structure of the Complex Between the Ulp/Senp Protease Family Member Den1 and Nedd8. *J. Mol. Biol.* **345**, 141-151 (2005).
- S Rubin, A Gall, N Zheng, N Pavletich. Structure of the Rb C-Terminal Domain Bound to E2F1-DP1: A Mechanism for Phosphorylation-Induced E2F Release. *Cell*. **123** (6), 1093-1106 (2005).
- M Rudolph, G Amodeo, Y Bai, L Tong. Crystal Structure of the Protein Kinase Domain of Yeast AMP-Activated Protein Kinase Snf1. *Biochem. Biophys. Res. Commun.* **337**, 1224-1228 (2005).
- A Ruthenburg, D Graybosch, J Huetsch, G Verdine. A Superhelical Spiral in the *Escherichia coli* DNA Gyrase A C-terminal Domain

- Imparts Unidirectional Supercoiling Bias. *J. Biol. Chem.* **280**, 26177-26184 (2005).
- C Steegborn, T Litvin, K Hess, A Capper, R Taussig, J Buck, L Levin, H Wu. A Novel Mechanism for Adenylyl Cyclase Inhibition from the Crystal Structure of its Complex with Catechol Estrogen. *J. Biol. Chem.* **280**, 31754 (2005).
- C Steegborn, T Litvin, L Levin, J Buck, H Wu. Biocarbonate Activation of Adenylyl Cyclase via Promotion of Catalytic Active Site Closure and Metal Recruitment. *Nat. Struct. Mol. Biol.* **12**, 32 (2005).
- X Tao. Structural and Functional Studies on Human DJ-1 (PARK7), a Protein Associated with Early-Onset Parkinson's Disease. PhD Thesis. Columbia University, New York. (2005).
- A Toro-Roman, T Mack, A Stock. Structural Analysis and Solution Studies of the Activated Regulatory Domain of the Response Regulator ArcA: A Symmetric Dimer Mediated by the $\alpha 4$ - $\beta 5$ - $\alpha 5$ Face. *J. Mol. Biol.* **349** (1), 11-26 (2005).
- A Toro-Roman, T Wu, A Stock. A Common Dimerization Interface in Bacterial Response Regulators KdpE and TorR. *Protein Sci.* **14** (12), 3077-3088 (2005).
- A Toro-Roman. A Model for the Mechanism of Activation of Response Regulators from the OmpR/PhoB Subfamily of Transcription Factors. Ph.D. Thesis. Rutgers, The State University of New Jersey, New Brunswick. (2005).
- L Vedula, M Rynkiewicz, H Pyun, R Coates, D Cane, D Christianson. Molecular Recognition of the Substrate Diphosphate Group Governs Product Diversity in Trichodiene Synthase Mutants. *Biochemistry*. **44**, 6153 (2005).
- J Williams, C Sue, G Banting, H Yang, D Glerum, W Hendrickson, E Schon. Crystal Structure of Human SCO1: Implications for Redox Signaling by a Mitochondrial Cytochrome C Oxidase „Assembly“ Protein. *J. Biol. Chem.* **280**, 15202 (2005).
- J Williams, H Xie, W Hendrickson. Crystal Structure of Dynein Light Chain TC1EX-1. *J. Biol. Chem.* **280**, 21981 (2005).
- P Worley, J Tu, B Xiao, D Leahy, J Beneken, A Lanahan, P Brakeman. Nucleic Acid Molecule Encoding Homer 2a Protein. US Patent No. 6,864,083. (2005).
- Q Xu, R Roberts, H Guo. Two Crystal Forms of the Restriction Enzyme MspI–DNA Complex Show the Same Novel Structure. *Protein Sci.* **14**, 2590-2600 (2005).
- A Yamashita, S Singh, T Kawate, Y Jin, E Gouaux. Crystal Structure of a Bacterial Homologue of Na⁺/Cl⁻-Dependent Neurotransmitter Transporters. *Nature*. **437**, 215 (2005).
- J Yang, L Wang, L Zheng, F Wan, M Ahmed, M Lenardo, H Wu. Crystal Structure of MC159 Reveals Molecular Mechanism of DISC Assembly and FLIP Inhibition. *Mol. Cell*. **20**, 939 (2005).
- M Zweifel, D Leahy, D Barrick. Structure and Notch Receptor Binding of the Tandem WWE Domain of Deltex. *Structure*. **13**, 1599-1611 (2005).
- Beamline X6A**
- M Adams, Z Jia. Structural and Biochemical Evidence for an Enzymatic Quinone Redox Cycle in Escherichia Coli: Identification of a Novel Quinol Monooxygenase. *J. Biol. Chem.* **280**, 8358 (2005).
- R DeSilva, G Kovacicova, W Lin, R Taylor, K Skorupski, F Kull. Crystal Structure of the Virulence Gene Activator Apha from Vibrio Cholerae Reveals it is a Novel Member of the Winged Helix Transcription Factor Superfamily. *J. Biol. Chem.* **280**, 13779 (2005).
- J Helliwell. Protein Crystal Perfection and its Application. *Acta Cryst. D*. **61**, 793-798 (2005).
- T Kajander, A Cortajarena, E Main, S Mochrie, L Regan. A New Folding Paradigm for Repeat Proteins. *J. Am. Chem. Soc.* **127**, 10188-10190 (2005).
- T Kuzuyama, J Noel, S Richard. Structural Basis for the Promiscuous Biosynthetic Prenylation of Aromatic Natural Products. *Nature*. **435** (7044), 983-7 (2005).
- A Mildvan, Z Xia, H Azurmendi, V saraswat, P Legler, M Massiah, S Gabelli, M Bianchet, L Kang, L Amzel. Structures and Mechanisms of Nudix Hydrolases. *Arch. Biochem. Biophys.* **433** (1), 129-43 (2005).
- M Nadella, M Bianchet, S Gabelli, J Barrila, L Amzel. Structure and Activity of the Axon Guidance Protein MICAL. *Proc Natl Acad Sci USA*. **102** (46), 16830-16835 (2005).
- D Nair, R Johnson, L Prakash, S Prakash, A Aggarwal. Rev1 Employs a Novel Mechanism of DNA Synthesis using a Protein Template. *Science*. **309**, 2219 (2005).
- M Nicholson, M Hahn, K Wucherpfennig. Unusual features of Self-Peptide/MHC Binding by Autoimmune T Cell Receptors. *Immunity*. **23** (4), 351-360 (2005).
- K Pant, B Crane. Structure of a Loose Dimer: an Intermediate in Nitric Oxide Synthase Assembly. *J. Mol. Biol.* **352** (4), 932-940 (2005).
- E Pozharski, A Moulin, A Hewagama, A Shanafelt, G Petsko, D Ringe. Diversity of Hapten Recognition: Structural Study of an Anti-Cocaine Antibody M82G2. *J. Mol. Biol.* **349** (3), 570-582 (2005).
- A Vahedi-Faridi, V Stojanoff, J Yeh. The Effects of Flash-Annealing on Glycerol Kinase Crystals. *Acta Cryst. D*. **61** (7), 982-989 (2005).
- Z Xia, H Azurmendi, L lairson, S Withers, S Gabelli, M Bianchet, L Amzel, A Mildvan. Mutational, Structural, and Kinetic Evidence for a Dissociative Mechanism in the GDP-mannose Mannosyl Hydrolase Reaction. *Biochemistry*. **44** (25), 8989-97 (2005).
- Beamline X6B**
- S Kwak, E DiMasi, Y Han, J Aizenberg, I Kuzmenko. Orientation and Mg Incorporation of Calcite Grown on Functionalized Self-Assembled Monolayers: A Synchrotron X-ray Study. *Cryst. Growth Des.* **5** (6), 2139-2145 (2005).
- Beamline X7A**
- D Cox, B Noheda, G Shirane. Low-Temperature Phases in PbZr_{0.52}Ti_{0.48}O₃: A Neutron Powder Diffraction Study. *Phys. Rev. B: Condens. Matter*. **71**, 134110-10 (2005).
- M Crawford, R Harlow, S Ceemyad, V Tissen, J Schilling, E McCarron, S Tozer, D Cox, N Ichikawa, et al.. High-Pressure Study of Structural Phase Transitions and Superconductivity in La_{1.48}Nd_{0.4}Sr_{0.12}CuO₄. *Phys. Rev. B*. **71**, 104513 (2005).
- F Drymiotis, Y Lee, G Lawes, J Lashley, T Kimura, S Shapiro, A Migliori, V Correa, R Fisher. Tunable Thermal Expansion Behavior in the Intermetallic YbGaGe. *Phys. Rev. B*. **71**, 174304 (2005).
- M Gateshki, V Petkov, S Pradhan, T Vogt. Structure of Nanocrystalline MgFe₂O₄ from X-ray Diffraction, Rietveld and Atomic Pair Distribution Function Analysis. *J. Appl. Cryst.* **38**, 772-779 (2005).
- J Graetz, Y Lee, J Reilly, S Park, T Vogt. Structures and Thermodynamics of the Mixed Alkali Aluminates. *Phys. Rev. B*. **71**, 184115 (2005).
- J Lai, K Shafi, A Ullman, K Loos, R Popovitz-Biro, Y Lee, T Vogt, C Estournes. One-Step Synthesis of Core(Cr)/Shell(γ -Fe₂O₃) Nanoparticles. *J. Am. Chem. Soc.* **127**, 5730-5731 (2005).
- Y Lee, J Hriljac, T Vogt. Pressure-Induced Migration of Zeolitic Water in Laumontite. *Phys. Chem. Miner.* **31**, 421-428 (2005).
- Y Lee, J Hriljac, T Vogt. Variable-Temperature Structural Studies of

- Tetranatrolite from Mt. Saint-Hilaire: Synchrotron X-ray Powder Diffraction and Rietveld Analysis. *Am. Mineral.* **90**, 247-251 (2005).
- Y Lee, J Hriljac, J Parise, T Vogt. Pressure-Induced Stabilization of Ordered Paratrolite: A new Insight into the Paratrolite controversy. *Am. Mineral.* **90**, 252-257 (2005).
- R Macquart, S Kim, W Gemmill, J Stalick, Y Lee, T Vogt, H zur Loye. Synthesis, Structure, and Magnetic Properties of $\text{Sr}_2\text{NiOsO}_6$ and $\text{Ca}_2\text{NiOsO}_6$: Two New Osmium-Containing Double Perovskites. *Inorg. Chem.* **44**, 9676-9683 (2005).
- Y Mudryk, Y Lee, T Vogt, K Gschneidner, Jr., V Pecharsky. Polymorphism of $\text{Gd}_5\text{Si}_2\text{Ge}_2$: The Equivalence of Temperature, Magnetic Field, and Chemical and Hydrostatic Pressures. *Phys. Rev. B* **71**, 174104 (2005).
- S Park, K Kang, W Si, W Yoon, Y Lee, A Moodebaugh, L Lewis, T Vogt. Synthesis and Characterization of $\text{Na}_0.3\text{RhO}_2 \cdot 0.6\text{H}_2\text{O}$ -A Semiconductor with a Weak Ferromagnetic Component. *Solid State Commun.* **135** (1-2), 51-56 (2005).
- S Park, Y Lee, W Si, T Vogt. Synthesis and Structure of the Monolayer Hydrate $\text{K}_0.3\text{CoO}_2 \cdot 4\text{H}_2\text{O}$. *Solid State Commun.* **134** (9), 607-611 (2005).
- V Petkov, V Parvanov, D Tomalia, D Swanson, D Bergstrom, T Vogt. 3D Structure of Dendritic and Hyper-Branched Macromolecules by X-ray Diffraction. *Solid State Commun.* **134** (10), 671-675 (2005).
- V Petkov, V Parvanov, P Trikalitis, C Malliakas, T Vogt, M Kanatzidis. Three-Dimensional Structure of Nanocomposites from Atomic Pair Distribution Function Analysis: Study of Polyaniline and $(\text{Polyaniline})_0.5\text{V}_2\text{O}_5 \cdot 1.0\text{H}_2\text{O}$. *J. Am. Chem. Soc.* **127**, 8805-8812 (2005).
- C Petrovic, Y Lee, T Vogt, N Lazarov, S Bud'ko, P Canfield. Kondo Insulator Description of Spin State Transition in FeSb_2 . *Phys. Rev. B: Condens. Matter* **72**, 045103 (2005).
- K Wallwork, B Kennedy, Q Zhou, Y Lee, T Vogt. Pressure and Temperature-Dependent Structural Studies of $\text{Ba}_2\text{BiTaO}_6$. *J. Solid State Chem.* **178** (1), 201-211 (2005).
- X Yang, B Toby, M Camblor, Y Lee, D Olson. Propene Adsorption Sites in Zeolite ITQ-12: a Combined Synchrotron X-ray Neutron Diffraction Study. *J. Phys. Chem. B* **109** (16), 7894-7899 (2005).
- Q Zhou, B Kennedy, K Wallwork, M Elcombe, Y Lee, T Vogt. Temperature and Pressure Dependent Structural Studies of the Ordered Double Perovskites $\text{Sr}_2\text{TbRu}_{1-x}\text{Ir}_x\text{O}_6$. *J. Solid State Chem.* **178** (7), 2282-2291 (2005).
- H zur Loye, M Smith, Y Lee, T Vogt. High-Pressure Investigation of $\text{Sr}_3\text{PbNiO}_6$. *J. Alloys Compd.* **390** (1-2), 35-40 (2005).
- Processes. *J. Magn. Magn. Mater.* **295** (2), 145-154 (2005).
- M Helliwell, R Jones, V Kaucic, N Logar. The use of Softer X-rays in the Structure Elucidation of Microporous Materials. *J. Synch. Rad.* **12** (4), 420-430 (2005).
- L Hildebrandt, R Dinnebier, M Jansen. Crystal Structure and Ionic Conductivity of Cesium Trifluoromethyl Sulfonate, CsSO_3CF_3 . *Z. Anorg. Allg. Chem.* **631**, 1660-1666 (2005).
- T Jensen, A Christensen, J Hanson. Hydrothermal Transformation of the Calcium Aluminum Oxide Hydrates $\text{CaAl}_2\text{O}_4 \cdot 10\text{H}_2\text{O}$ and $\text{Ca}_2\text{Al}_2\text{O}_7 \cdot 8\text{H}_2\text{O}$ to $\text{Ca}_3\text{Al}_2(\text{OH})_{12}$ Investigated by In Situ Synchrotron X-ray Powder Diffraction. *Cem. Concr. Res.* **35**, 2300-2309 (2005).
- H Jeong, Z Lai, M Tsapatsis, J Hanson. Strain of MFI Crystals in Membranes: An in situ Synchrotron X-ray Study. *Microporous Mesoporous Mater.* **84** (1-3), 332-337 (2005).
- Y Meng, G Ceder, C Grey, W Yoon, M Jiang, J Breger, Y Shao-Horn. Cation Ordering in Layered $\text{O}_3 \text{Li}[\text{Ni}_x\text{Li}_{1/3-2/3}\text{Mn}_{2/3-x}]/\text{O}_2$. *Chem. Mater.* **17**, 2386-2394 (2005).
- J Rodriguez, X Wang, G Liu, J Hanson, J Hrbek, C Peden, A Iglesias-Juez, M Fernandez-Garcia. Physical and Chemical Properties of $\text{Ce}_{1-x}\text{Zr}_x\text{O}_2$ Nanoparticles and $\text{Ce}_{1-x}\text{Zr}_x\text{O}_2(1 \ 1 \ 1)$ Surfaces: Synchrotron-Based Studies. *J. Mol. Catal. A: Chem.* **228**, 11-19 (2005).
- L Solovyov, O Belousov, R Dinnebier, A Shmakov, S Kirik. X-ray Diffraction Structure Analysis of MCM-48 Mesoporous Silica. *J. Phys. Chem. B* **109**, 3233-3237 (2005).
- J Szanyi, J Kwak, J Hanson, C Wang, T Szailer, C Peden. Changing Morphology of $\text{BaO}/\text{Al}_2\text{O}_3$ During NO_2 Uptake and Release. *J. Phys. Chem. B* **109**, 7339-7344 (2005).
- S van Smalen, R Dinnebier, J Hanson, J Gollwitzer, F Bullesfeld, A Prokofiev, W Assmus. High-Temperature Behavior of Vanadyl Pyrophosphate $(\text{VO})_2\text{P}_2\text{O}_7$. *J. Solid State Chem.* **178** (7), 2225-2230 (2005).
- X Wang, J Rodriguez, J Hanson, D Gamarra, A Martinez-Arias, M Fernandez-Garcia. Unusual Physical and Chemical Properties of Cu in $\text{Ce}_{1-x}\text{Cu}_x\text{O}_2$ Oxides. *J. Phys. Chem. B* **109**, 19595-19603 (2005).
- X Wang, J Hanson, J Rodriguez, C Belver, M Fernandez-Garcia. The Structural and Electronic Properties of Nanostructured $\text{Ce}_{(1-x-y)}\text{Zr}_x\text{Tb}_y\text{O}_2$ Ternary Oxides: Unusual Concentration of $\text{Tb}(3+)$ and Metal-Oxygen-Metal Interactions. *J. Chem. Phys.* **122** (15), 154711 (2005).
- X Wang, J Rodriguez, J Hanson, M Perez, J Evans. In Situ Time-Resolved Characterization of $\text{Au}-\text{CeO}_2$ Catalysts During Water Gas Shift Reactions: presence of Au and O Vacancies in the Active Phase. *J. Chem. Phys.* **123**, 221101 (2005).
- W Wen, B Kumarasamy, S Mukerjee, M Auinat, Y Ein-Eli. Origin of 5 V Electrochemical Activity Observed in Non-Redox Reactive Divalent Cation Doped $\text{LiM}_{0.5-x}\text{Mn}_{1.5+x}\text{O}_4$ ($0 < x < 1$). *Electrochem. Soc.* **152** (9), A1902 (2005).
- W Yoon, M Balasubramanian, X Yang, J McBrean, J Hanson. Time Resolved XRD Study on the Thermal Decomposition of $\text{Li}_{1-x}\text{Ni}_0.8\text{Co}_0.15\text{Al}_{0.05}\text{O}_2$ Cathode Materials for Li-ion Batteries. *Electrochem. Solid-State Lett.* **8**, A83 (2005).
- J Zhang, F Lima, M Shao, K Sasaki, J Wang, J Hanson, R Adzic. Platinum Monolayer on Nonnoble Metal-Nobel Metal Core-Shell Nanoparticle Electrocatalysts for O_2 Reduction. *J. Phys. Chem. B* **109**, 22701-22704 (2005).

Beamline X7B

- A Celestian, D Medvedev, A Tripathi, J Parise, A Clearfield. Optimizing Synthesis of $\text{Na}_2\text{Ti}_2\text{SiO}_7 \cdot 2\text{H}_2\text{O}$ (Na-CST) and Ion Exchange Pathways for $\text{Cs}_0.4\text{H}_{1.6}\text{Ti}_2\text{SiO}_7 \cdot \text{H}_2\text{O}$ (Cs-CST) Determined from in situ Synchrotron X-ray Powder Diffraction. *Nucl. Instrum. Meth. B* **238**, 61-69 (2005).
- R Dinnebier, S Vensky, M Jensen, J Hanson. Crystal Structure and Topological Aspects of the High-Temperature Phases of the Alkali-metal Oxalates $\text{M}_2\text{C}_2\text{O}_4$ ($\text{M} = \text{K}, \text{Rb}, \text{Cs}$). *Chem. Eur. J.* **11** (4), 1119-1129 (2005).
- M Fernandez-Garcia, X Wang, C Belver, A Iglesias-Juez, J Hanson, J Rodriguez. Ca Doping of Nanosize Ce-Zr and Ce-Tb Solid Solutions: Structural and Electronic Effects. *Chem. Mater.* **17**, 4181-4193 (2005).
- X Guo, B Ravi, P Devi, J Hanson, J Margolies, R Gambino, J Parise, S Sampath. Synthesis of Yttrium Iron garnet (YIG) by Citrate-Nitrate Gel Combustion and Precursor Plasma Spray

Beamline X8C

- J Adams, G Pal, K Yam, H Spencer, Z Jia, S Smith. Purification and Crystallization of a Trimodular Complex Comprising the Type II Cohesin-Dockerin Interaction from the Cellulosome of *Clostridium thermocellum*. *Acta Cryst. F* **61**, 46-48 (2005).

- A Athanasiadis, D Placido, S Maas, B Brown, II, K Lowenhaupt, A Rich. The Crystal Structure of the ZB Domanin of the RNA-Editing Enzyme ADAR1 Reveals Distinct Conserved Surfaces Among Z-Domains. *J. Mol. Biol.* **351** (33), 496-507 (2005).
- R Crowther, M Georgiadis. The Crystal Structure of 5-Keto-4-Deoxyuronate Isomerase from *Escherichia Coli*. *Proteins: Struct. Func. Genet.* **61**, 680 (2005).
- C Goulding, M Apostol, M Sawaya, M Phillips, A Parseghian, D Eisenberg. Regulation by Oligomerization a Mycobacterial Folate Biosynthetic Enzyme. *J. Mol. Biol.* **349**, 61-72 (2005).
- M Huang, A Mazar, G Parry, A Higazi, A Kuo, D Cines. Crystallization of Soluble Urokinase Receptor (suPAR) in Complex with Urokinase Amino-Terminal Fragment (1-143). *Acta Cryst. D.* **61**, 697-700 (2005).
- J Johnston, V Arcus, E Baker. Structure of Naphthoate Synthase (MenB) From *Mycobacterium Tuberculosis* in Both Native and Product-Bound Forms. *Acta Cryst. D.* **61** (9), 1199-1206 (2005).
- A Kim, T Dobransky, R Rylett, B Shilton. Surface-Entropy Reduction used in the Crystallization of Human Choline Acetyltransferase. *Acta Cryst. D.* **61** (9), 1306-1310 (2005).
- T Kuzuyama, J Noel, S Richard. Structural Basis for the Promiscuous Biosynthetic Prenylation of Aromatic Natural Products. *Nature*. **435** (7044), 983-7 (2005).
- P Lario, R Pfuetzner, E Frey, L Creagh, C Haynes, A Maurelli, N Strynadka. Structure and Biochemical Analysis of a Secretin Pilot Protein. *EMBO J.* **24**, 1111-1121 (2005).
- R Liu, P Loll, R Eckenhoff. Structural Basis for High Affinity Volatile Anesthetic Binding in a Natural 4-helix Bundle Protein. *Faseb J.* **19**, 567-576 (2005).
- J Meng, D Vardar, Y Wang, H Guo, J Head, C McKnight. High-Resolution Crystal Structures of Villin Headpiece nad Mutants with Reduced F-Actin Binding Activity. *Biochemistry*. **44**, 11963-11973 (2005).
- A Mezzetti, J Schrag, C Cheong, R Kazlauskas. Mirror-Image Packing in Enantiomer Discrimination Molecular Basis for the Enantioselectivity of B. Cepaci Lipase Toward 2-Methyl-3-Phenyl-1-Propanol. *Chem. Bio.* **12**, 427 (2005).
- I Mirza, I Nazi, M Korczynska, G Wright, A Berghuis. Crystal Structure of Homoserine Transacetylase from *Haemophilus Influenzae* Reveals a New Family of alpha/beta-Hydrolases. *Biochemistry*. **44**, 15768-15773 (2005).
- J Pedelacq, G Waldo, S Cabantous, E Liong, T Terwilliger. Structural and Functional Features of a nNDP Kinase from the Hyperthermophile *Crenarchaeon Pyrobaculum Aerophilum*. *Protein Sci.* **14**, 2562 (2005).
- E Rangarajan, Y Li, P Iannuzzi, M Cygler, A Matte. Crystal Structure of *Escherichia coli* Crotonobetianyl-CoA: Carnitine CoA-Transferase (CaiB) and Its Complexes with CoA and Carnitiny-CoA. *Biochemistry*. **44**, 5728-5738 (2005).
- S Raymond, A Tocilj, E Ajamian, Y Li, M Hung, A Matte, M Cygler. Crystal Structure of Ureidoglycolate Hydrolase (AIIA) from *Escherichia coli* O157:H7. *Proteins: Struct. Func. Genet.* **61** (2), 454-459 (2005).
- J Schuermann, S Prewitt, C Davies, S Deutscher, J Tanner. Evidence for Structural Plasticity of Heavy Chain Complementarity-determining Region 3 in Antibody-ssDNA Recognition. *J. Mol. Biol.* **347**, 965 - 978 (2005).
- J Sivaraman, R Myers, L Boju, T Sulea, M Cygler, V Davisson, J Schrag. Crystal Structure of *Methanobacterium thermoautotrophicum* Phosphoribosyl-AmP. *Biochemistry*. **44**, 10071-10080 (2005).
- D Snyder, Y Chen, N Denissova, T Acton, J Aramini, M Ciano, R Karlin, J Liu, P Manor, et al.. Comparisons of NMR Spectral Quality and Success in Crystallization Demonstrate that NMR and X-ray Crystallography are Complementary Methods for Small Protein Structure Determination. *J. Am. Chem. Soc.* **127**, 16505-16511 (2005).
- M St-Jean, J Lafrance-Vanasce, B Liotard, J Sygusch. High Resolution Reaction Intermediates of rabbit Muscle Fructose-1,6-bisphosphate Aldolase: Substrate Cleavage and Induced Fit. *J. Biol. Chem.* **280** (29), 27262-70 (2005).
- P Telmer, B Shilton. Structural Studies of an Engineered Zinc Biosensor Reveal an Unanticipated Mode of Zinc Binding. *J. Mol. Biol.* **354** (4), 829-840 (2005).
- A Tocilj, J Schrag, Y Li, B Schneider, L Reitzer, A Matte, M Cygler. Crystal Structure of N-succinylarginine Dihydrolase AstB, Bound to Substrate and Product, an Enzyme from the Arginine Catabolic Pathway of *Escherichia Coli*. *J. Biol. Chem.* **280** (16), 15800-15808 (2005).
- Z Yang, J Horton, R Maunus, G Wilson, R Roberts, X Cheng. Structure of HinP1I Endonuclease Reveals a Striking Similarity to the Monomeric Restriction Enzyme MspI. *Nucleic Acids Res.* **33** (6), 1892-1901 (2005).

Beamline X9A

- T Ball, W Edstrom, L Mauch, J Schmitt, B Leistler, H Fiebig, W Sperr, A Hauswirth, P Valent, et al.. Gain of Structure and IgE Epitopes by Eukaryotic Expression of the Major Timothy Grass Pollen Allergen, Phl p. 1. *FEBS Lett.* **272**, 217 (2005).
- W Barton, D Tzvekova, D Nikolov. Structure of the Angiopoietin-2 Receptor Binding Domain and Identification of Surfaces Involved in Tie2 Recognition. *Structure*. **13** (5), 825-832 (2005).
- I Berke. Nuts and Bolts of the NPC: The Structure of Nup133. Ph.D. Thesis. Rockefeller University, New York. (2005).
- M Chlenov, Y Masuda, K Murakami, V Nikiforov, S Darst, A Mustaev. Structure and Function of Lineage-Specific Sequence Insertions in the Bacterial RNA Polymerase beta' Subunit. *J. Mol. Biol.* **353**, 138-154 (2005).
- B Hao, N Zheng, B Schulman, G Wu, J Miller, M Pagano, N Pavletich. Structural Basis of the Cks1-Dependent Recognition of P27Kip1 by the SCF skp2 Ubiquitin Ligase. *Mol. Cell*. **20** (1), 9-19 (2005).
- S Hegde, M Vetting, S Roderick, L Mitchenall, A Maxell, H Takiff, J Blanchard. A Fluoroquinolone Resistance Protein from *Mycobacterium tuberculosis* That Mimics DNA. *Science*. **308**, 1480 (2005).
- R Janjusevic, R Abramovitch, G Martin, C Stebbins. A Bacterial Inhibitor of Host Programmed Cell Death Defenses is an E3 Ubiquitin Ligase. *Science*. **311**, 222-226 (2005).
- D Jian, y Kim, K Maxwell, S Beasley, R Zhang, g Gussin, A Edwards, S Darst. Crystal Structure of Bacteriophage lamda cII and its DNA Complex. *Mol. Cell*. **19**, 259-269 (2005).
- S Li, K Schmitz, P Jeffrey, J Wiltzius, P Kussie, K Ferguson. Structural Basis for Inhibition of the Epidermal Growth Factor Receptor by Cetuximab. *Cancer Cell*. **7** (4), 301-311 (2005).
- B Manjasetty, F Niesen, C Scheich, Y Roske, F Goetz, J Behlke, V Sievert, U Heinemann, K Buessow. X-ray Structure of Engineered Human Aortic Preferentially Expressed Protein-1 (APEG-1). *BMC Struct. Bio.* **5**, 21 (2005).
- N Marinkovic, S Gupta, C Zhan, M Chance. Synchrotron Radiation in Biosciences. *Nucl. Instrum. Meth. B.* **241** (1-4), 242-246 (2005).
- D Nikolov, C Li, W Barton, J Himanen. Crystal Structure of the Ephrin-B1 Ectodomain: Implications for Receptor Recognition and Signaling. *Biochemistry*. **44**, 10947-10953 (2005).
- L Patskovska, Y Patskovsky, S Almo, R Hirsch. COHbC and COHbS Crystallize in the R2 Quaternary State at Neutral pH in the Presence of PEG 4000. *Acta Cryst. D.* **61**, 566 (2005).

- U Ramagopal, Z Dauter, R Thirumuruhan, E Fedorov, S Almo. Radiation-Induced Site-Specific Damage of Mercury Derivatives: Phasing and Implications. *Acta Cryst. D.* **61** (9), 1289-1298 (2005).
- E Sickmier, D Brekasis, S Paranawithana, J Bonanno, M Paget, S Burley, C Kielkopf. X-ray Structure of a Rex-Family Repressor/ NADH Complex Insights into the Mechanism of Redox Sensing. *Structure.* **13**, 43-54 (2005).
- J Sun, W Wang, H Yang, S Liu, F Liang, A Fedorov, S Almo, Z Zhang. Structure and Biochemical Properties of PRL-1, a Phosphatase Implicated in Cell Growth, Differentiation, and Tumor Invasion. *Biochemistry.* **44**, 12009-12021 (2005).
- T Tellinghuisen, J Marcotrigiano, C Rice. Structure of the Zinc-Binding Domain of an Essential Component of the Hepatitis C Virus Replicase. *Nature.* **435**, 374 (2005).
- N Thoma, B Czyzewski, A Alexeev, A Mazin, N Pavletich. Structure of the SW12/SNF2 Chromatin-Remodeling Domain of Eukaryotic Rad54. *Nat. Struct. Mol. Biol.* **12**, 350-356 (2005).
- H Yang, Q Li, J Fan, W Hollomon, N Pavletich. The BRCA2 Homologue Brh2 Nucleates RAD51 Filament Formation at a dsDNA-ssDNA Junction. *Nature.* **433**, 653-657 (2005).
- Beamline X9B**
- R Breece, A Costello, B Bennett, T Sigdel, M Matthews, D Tierney, M Crowder. A Five-Coordinate Metal Center in Co(II)-Substituted VanX. *J. Biol. Chem.* **280**, 11074-11081 (2005).
- M Chlenov, Y Masuda, K Murakami, V Nikiforov, S Darst, A Mustaev. Structure and Function of Lineage-Specific Sequence Insertions in the Bacterial RNA Polymerase beta' Subunit. *J. Mol. Biol.* **353**, 138-154 (2005).
- A Fokine, p Leiman, M Shneider, B Ahvazi, K Boeshans, A Steven, L Black, V Mesyanzhinov, M Rossman. Structural and Functional Similarities Between the Capsid Proteins of Bacteriophages T4 and HK97 Point to a Common Ancestry. *Proc Natl Acad Sci USA.* **102**, 7163-7168 (2005).
- A Guarne, T Brendler, Q Zhao, R Ghirlando, S Austin, W Yang. Crystal Structure of a SeqA-N Filament: Implications for DNA Replication and Chromosome Organization. *EMBO J.* **24**, 1502-1511 (2005).
- K Gunter, M Aschner, L Miller, R Eliseev, J Salter, K Anderson, S Hammond, T Gunter. Determining the Oxidation States of Manganese in PC12 and Nerve Growth Factor-Induced PC12 Cells. *N/A.* **39** (2), 164-181 (2005).
- A Gustchina, M Li, S Wunschmann, M Chapman, A Pomes, A Wlodawer. Crystal Structure of Cockroach Allergen Bla g2, an Unusual Zinc Binding Aspartic Protease with a Novel Mode of Self-Inhibition. *J. Mol. Biol.* **348** (2), 433-444 (2005).
- A Hansen, Y Gu, M Li, M Andrykovitch, D Waugh, D Jin, X Ji. Structural Basis for the Function of Stringent Starvation Protein A as a Transcription Factor. *J. Biol. Chem.* **280**, 17380-17391 (2005).
- M Jensen, M Costas, R Ho, J Kaizer, A Payeras, E Umnck, L Que, Jr., J Rohde, A Stubna. High-Valent Nonheme Iron. Two Distinct Iron(IV) Species Derived from a Common Iron(II) Precursor. *J. Am. Chem. Soc.* **127**, 10512-10525 (2005).
- J Kim, S Sitaraman, A Hierro, B Beach, G Odorizzi, J Hurley. Structural Basis For Endosomal Targeting by The Bro1 Domain. *N/A.* **8**, 937-947 (2005).
- D Lansky, B Mandimutsira, B Ramdhanie, M Clausen, J Penner-Hahn, S Zvyagin, J Telser, J Krzystek, R Zhan, Z Ou. Synthesis, Characterization, and Physicochemical Properties of Manganese(III) and Manganese(V)-Oxo Corrolazines. *Inorg. Chem.* **44**, 4485-4498 (2005).
- Y Li, J Blaszczyk, Y Wu, G Shi, X Ji, H Yan. Is the Critical Role of Loop 3 of Escherichia coli 6-Hydroxymethyl-7,8-dihydropterin Pyrophosphokinase in Catalysis Due to Loop-3 Residues Arginine-84 and Tryptophan-89? Site-Directed Muagenesis, Biochemical, and Crystallographic Studies. *Biochemistry.* **44**, 8590-8599 (2005).
- A Longo, C Leonard, G Bassi, D Berndt, J Krahn, T Tanaka Hall, K Weeks. Evolution from DNA to RNA Recognition by the bl3 LAGLIDADG Maturase. *Nat. Struct. Mol. Biol.* **12** (9), 779 (2005).
- M Mayer. Crystal Structures of the GluR5 and GluR6 Ligand Binding Cores: Molecular Mechanisms Underlying Kainate Receptor Selectivity. *Neuron.* **45**, 539-552 (2005).
- O Pasternak, J Biesiadka, F Dolot, L Hanschuh, G Bujacz, M Sikorski, M Jaskolski. Structure of a Yellow Lupin Pathogenesis-Related PR-10 Protein Belonging to a Novel Subclass. *Acta Cryst. D.* **61**, 99-107 (2005).
- J Penner-Hahn. Characterization of "Spectroscopically Quiet" Metals in Biology. *Coord. Chem. Rev.* **249**, 161-177 (2005).
- B Ramakrishnan, E Boeggeman, P Qasba. Mutation of Arginine 228 to Lysine Enhances the Glucosyltransferase Activity of Bovine beta-1,4-Galactosyltransferase I. *Biochemistry.* **44**, 3202-3210 (2005).
- K Saikrishnan, G Manjunath, P Singh, J Jeyakanthan, Z Dauter, K Sekar, K Muniyappa, M Vijayan. Structure of Mycobacterium smegmatis Single-Stranded DNA-Binding Protein and a Comparative Study Involving Homologous SSBs: Biological Implications of Structural Plasticity and Variability in Quaternary Association. *Acta Cryst. D.* **61** (8), 1140-1148 (2005).
- F Schubot, S Cherry, B Austin, J Tropea, D Waugh. Crystal Structure of the Protease-Resistant Core Domain of Yersinia Pestis Virulence Factor YopR. *Protein Sci.* **14**, 1679 (2005).
- K Sekar, V Rajakannan, D Gayathri, D Velmurugan, M Poi, M Dauter, Z Dauter, M Tsai. Atomic Resolution (0.97 Angstrom) Structure of the Triple Mutant (K53,56,121M) of Bovine Pancreatic Phospholipase A2. *Acta Cryst. F.* **61**, 3-7 (2005).
- W Shi, C Zhan, A Lgnatov, B Manjasetty, N Marinkovic, M Sullivan, R Huang, M Chance, H Li, et al.. Metalloproteomics: High-Throughput Structural and Functional Annotation of Proteins in Structural Genomics. *Structure.* **13** (10), 1473-1486 (2005).
- B Strokopytov, A Fedorov, N Mahoney, M Kessels, D Drubin, S Slmo. Phased Translation Function Revisited: Structure Solution of the Cofilin-Homology Domain from Yeast Actin-Binding Protein 1 Using six-Dimensional Searches. *Acta Cryst. D.* **61**, 285-293 (2005).
- P Thomas, E Stone, A Costello, D Tierney, W Fast. The Quorum-Quenching Lactonase from Bacillus thuringiensis is a Metalloprotein. *Biochemistry.* **44**, 7559-7569 (2005).
- W Wen, B Kumarasamy, S Mukerjee, M Auinat, Y Ein-Eli. Origin of 5 V Electrochemical Activity Observed in Non-Redox Reactive Divalent Cation Doped LiM0.5-xMn1.5+xO4 (0<XJ. *Electrochem. Soc.* **152** (9), A1902 (2005).
- Beamline X10A**
- H Cui, V Krikorian, J Thompson, A Nowak, T Deming, D Pochan. Preparation and Characterization of Synthetic Polypeptide Single Crystals with Controlled Thickness. *Macromolecules.* **38**, 7371-7377 (2005).
- S Guthrie, G Mazzanti, S Idziak. X-ray phase Identification of Chocolate is Possible. *Eur. J Lipid Sci. Tech.* **107**, 656-659 (2005).
- M Lamm, K Rajagopal, J Schneider, D Pochan. Laminated Morphology of Nontwisting beta-Sheet Fibrils Constructed via Peptide Self-Assembly. *J. Am. Chem. Soc.* **127**, 16692-16700 (2005).

- M May, I Lim, J Luo, Z Rab, D Rabinovich, T Liu, C Zhong. Mediator-Template Assembly of Nanoparticles. *J. Am. Chem. Soc.* **127**, 1519-1529 (2005).
- G Mazzanti, A Marangoni, S Idziak. Modeling Phase Transitions During the Crystallization of a Multicomponent Fat Under Shear. *Phys. Rev. E*. **71**, 041607 (2005).

Beamline X10B

- S Guthrie, G Mazzanti, S Idziak. X-ray phase Identification of Chocolate is Possible. *Eur. J. Lipid Sci. Tech.* **107**, 656-659 (2005).
- S Harton, T Koga, F Stevie, T Araki, H Ade. Investigation of Blend Miscibility of a Ternary PS/PCHMA/PMMA System Using SIMS and Mean-Field Theory. *Macromolecules*. **38**, 10511-10515 (2005).
- S Harton, F Stevie, R Spontak, T Koga, M Rafailovich, J Sokolov, H Ade. Low-Temperature Reactive Coupling at Polymer-Polymer Interfaces Facilitated by Supercritical Carbon Dioxide. *Polymer*. **46**, 10173-10179 (2005).
- T Koga, J Jerome, M Rafailovich, J Sokolov, C Gordon. Metalizable Polymer Thin Films in Supercritical Carbon Dioxide. *J. Adhes.* **81**, 751-764 (2005).
- T Koga, C Li, Y Sun, M Rafailovich, J Sokolov, J Douglas, D Mahajan. Surface Modification of Polymeric Nanocomposite Thin Films using Supercritical Carbon Dioxide. *Top. Catal.* **32**, 257-262 (2005).
- Y Seo, T Koga, J Sokolov, M Rafailovich, M Tolan, S Sinha. Deviations from Liquidlike Behavior in molten Polymer Films at Interfaces. *Phys. Rev. Lett.* **94**, 157802 (2005).

Beamline X10C

- J Calla, R Davis. X-ray Absorption Spectroscopy and CO Oxidation Activity of Au/Alumina Treated with NaCN. *Catal. Lett.* **99** (1-2), 21-26 (2005).
- J Calla, R Davis. Investigation of Alumina-Supported Au Catalyst for CO Oxidation by Isotopic Transient Analysis and X-ray Absorption Spectroscopy. *J. Phys. Chem. B*. **109** (6), 2307-2314 (2005).
- J Calla, R Davis. Influence of Dihydrogen and Water Vapor on the Kinetics of CO Oxidation over Au/Alumina. *Ind. Eng. Chem. Res.* **44**, 5403 (2005).
- P Haider, Y Chen, S Lim, G Haller, L Pfefferle, D Ciuparu. Application of the Generalized 2D Correlation Analysis to Dynamic Near-Edge X-ray Absorption Spectroscopy Data. *J. Am. Chem. Soc.* **127**, 1906-1912 (2005).
- H Isaacs, K Sasaki, C Jeffcoate, V Laget, R Buchheit. Formation of Chromate Conversion Coatings on Aluminum and Its Alloys. *J. Electrochem. Soc.* **152**, B460 (2005).
- V Murthi. Electrochemistry at Interfaces with Low Water Content: Applications to Proton Exchange Membrane Fuel Cells and Growth of Anodic Oxide Films. Ph.D Thesis. Northeastern University, Boston. (2005).
- Y Yang, S Lim, G Du, Y Chen, D Ciuparu, G Haller. Synthesis and Characterization of Highly Ordered Ni-MCM-41 Mesoporous Molecular Sieves. *J. Phys. Chem. B*. **109**, 13237-13246 (2005).

Beamline X11A

- O Alexeev, F Li, M Amiridis, B Gates. Effects of Adsorbates on Supported Platinum and Iridium Clusters: Characterization in Reactive Atmospheres and During Alkene Hydrogenation Catalysis by X-ray Absorption Spectroscopy. *J. Phys. Chem. B*. **109** (6), 2338-2349 (2005).

- Y Arai, D Sparks, J Davis. Arsenate Adsorption Mechanisms at the Allophane-Water Interface. *Environ. Sci. Tech.* **39**, 2537-2544 (2005).
- T Boonfueng, L Axe, Y Xu. Properties and Structure of Manganese Oxide-Coated Clay. *J. Colloid Interface Sci.* **281** (1-2), 80-92 (2005).
- S Calvin, S Luo, C Caragianis-Broadbridge, J McGuinness, E Anderson, A Lehman, K Wee, S Morrison, L Kurihara. Comparison of Extended X-ray Absorption Fine Structure and Scherrer Analysis of X-ray Diffraction as Methods for Determining Mean Sizes of Polydisperse Nanoparticles. *Appl. Phys. Lett.* **87** (23), 233102 (2005).
- S Calvin, C Riedel, E Carpenter, S Morrison, R Stroud, V Harris. Estimating Crystallite Size in Polydispersed Samples using EXAFS. *Phys. Scr.* **T115**, 744-748 (2005).
- I Drake, K Fajdala, A Bell, T Tilley. Dimethyl Carbonate Production Via the Oxidative Carbonylation of Methanol Over Cu/SiO₂ Catalysts Prepared Via Molecular Precursor Grafting and Chemical Vapor Deposition Approaches. *J. Catal.* **230** (1), 14-27 (2005).
- M Grafe, D Sparks. Kinetics of Zinc and Arsenate Co-sorption at the Goethite-water Interface. *Geochim. Cosmochim. Acta*. **69** (19), 4573-4595 (2005).
- A Holland, G Li, A Shahin, G Long, A Bell, T Tilley. New Fe/SiO₂ Materials Prepared using Diiron Molecular Precursors: Synthesis, Characterization and Catalysis. *J. Catal.* **235** (1), 150-163 (2005).
- A Keimowitz, Y Zheng, S Chillrud, B Mailloux, H Bok Jung, M Stute, H Simpson. Arsenic Redistribution Between Sediments and Water Near a Highly Contaminated Source. *Environ. Sci. Tech.* **39**, 8606-8613 (2005).
- Y Lee, E Elzinga, R Reeder. Cu(II) Adsorption at the Calcite-Water Interface in the Presence of Natural Organic Matter: Kinetic Studies and Molecular-Scale Characterization. *Geochim. Cosmochim. Acta*. **69**, 49-61 (2005).
- Y Lee, E Elzinga, R Reeder. Sorption Mechanisms of Zinc on Hydroxyapatite: Systematic Uptake Studies and EXAFS Spectroscopy Analysis. *Environ. Sci. Tech.* **39**, 4042-4048 (2005).
- S Maeng, L Axe, T Tyson, A Jiang. An Investigation on Structure of Thermal and Anodic Tantalum Oxide Films. *J. Electrochem. Soc.* **152** (2), B60-B64 (2005).
- A Mansour, L Croguennec, C Delmas. A Unique Structure of Ni(III) in LiNi_{0.30}Co_{0.30}O₂ Without Jahn-Teller Distortion. *Electrochem. Solid-State Lett.* **8** (10), A544-A548 (2005).
- A Mansour, P Smith, M Balasubramanian, J McBreen. In Situ X-Ray Absorption Study of Cycled Ambigel V_{20_5}nH₂₀ (n ~ 0.5) Composite Cathodes. *N/A*. **152** (7), A1312-A1319 (2005).
- S Morrison, C Cahill, E Carpenter, S Calvin, V Harris. Atomic Engineering of Mixed Ferrite and Core-Shell Nanoparticles. *J. Nanosci. Nanotechnol.* **5** (9), 1323-1344 (2005).
- V Murthi. Electrochemistry at Interfaces with Low Water Content: Applications to Proton Exchange Membrane Fuel Cells and Growth of Anodic Oxide Films. Ph.D Thesis. Northeastern University, Boston. (2005).
- M Nachtegaal, M Marcus, J Sonke, J Vangronsveld, K Livi, D van Der Lelie, D Sparks. Effects of in situ Remediation on the Speciation and Bioavailability of Zinc in a Smelter Contaminated Soil. *Geochim. Cosmochim. Acta*. **69** (19), 4649-4664 (2005).
- J Roques, A Anderson, V Murthi, S Mukerjee. Potential Shift for OH(ads) Formation on the Pt Skin on Pt₃Co(111) Electrodes in Acid. *J. Electrochem. Soc.* **152**, E193 (2005).
- M Teliska, V Murthi, S Mukerjee, D Ramaker. Correlation of Water Activation, Surface Properties, and Oxygen Reduction Reactivity of Supported Pt-M/C Bimetallic Electrocatalysts Using XAS. *J. Electrochem. Soc.* **152**, A2159 (2005).

- M Teliska, W O'Grady, D Ramaker. Determination of O and OH Adsorption Sites in situ from Pt L23 X-ray Absorption Spectroscopy. *J. Phys. Chem. B.* **109** (16), 8076-8084 (2005).
- M Teliska, V Murthi, S Mukerjee, D Ramaker. In Situ Determination of O(H) Adsorption Sites on Pt Based Alloy Electrodes using X-ray Absorption Spectroscopy. *Fundamental Understanding of Electrode Processes in Memory of Professor Ernest B. Yeager*, Vol , p. 212-215, sponsored by The Electrochemical Society. (2005).
- A Voegelin, R Kretschmar. Formation and Dissolution of Single and Mixed Zn and Ni Precipitates in Soil: Evidence From Column Experiments and Extended X-ray Absorption Fine Structure Spectroscopy. *Environ. Sci. Tech.* **39**, 5311-5318 (2005).
- A Voegelin, S Pfister, A Scheinost, M Marcus, R Kretschmar. Changes in Zinc Speciation in Field Soil After Contamination with Zinc Oxide. *Environ. Sci. Tech.* **39**, 6616-6623 (2005).
- X Wang, J Spivey, H Lamb. NO Decomposition Over a Pd/MgO Catalyst Prepared from [Pd(acac)₂]. *Appl. Catal. B.* **56** (4), 261-268 (2005).
- Beamline X11B**
- D Ciuparu, P Haider, M Fernandez-Garcia, Y Chen, S Lim, G Haller, L Pfefferle. X-ray Absorption Spectroscopic Investigation of Partially Reduced Cobalt Species in Co-MCM-41 Catalysts During Synthesis of Single-Wall Carbon Nanotubes. *J. Phys. Chem. B.* **109**, 16332-16339 (2005).
- M Teliska, W O'Grady, D Ramaker. Determination of O and OH Adsorption Sites in situ from Pt L23 X-ray Absorption Spectroscopy. *J. Phys. Chem. B.* **109** (16), 8076-8084 (2005).
- Beamline X12A**
- G Carini, A Bolotnikov, G Camarda, G Wright, G De Geronimo, D Siddons, R James. Synchrotron Radiation Response Characterization of Coplanar Grid CZT Detectors. *Nuclear Science Symposium - Room Temperature Semiconductor Detector*, p. R2-5, sponsored by IEEE. (2005).
- G Carini, G Camarda, Z Zhong, D Siddons, A Bolotnikov, G Wright, B Barber, C Arnone, R James. High-Energy X-ray Diffraction and Topography Investigation of CdZnTe. *J. Electron. Mater.* **34** (6), 804-810 (2005).
- G Carini, G Camarda, Z Zhong, D Siddons, A Bolotnikov, G Wright, B Barber, C Arnone. High-Energy X-ray Diffraction and Topography Investigation of CdZnTe. *2004 U.S. Workshop on the Physics and Chemistry of II-VI Materials*, Vol , p. 804-810, sponsored by TMS, Air Force Res. Lab., Off. of Naval Res., U.S. Navy E-O Center Penn State Uni., U.S. Army SDMC. U.S. Army Res. Lab. U.S. Army RDECOM CERDEC Night Vision & Electronic Sensors Directorate. (2005).
- G Carini, A Bolotnikov, G Camarda, G De Geronimo, D Siddons, G Wright, R James. New Results from Testing of Coplanar-grid CdZnTe Detectors. *Hard X-ray and Gamma-Ray Detector Physics VII*, Vol , p. 59220M-1/6, sponsored by SPIE. (2005).
- Beamline X12B**
- R Agarwal, T Binz, S Swaminathan. Analysis of Active Site Residues of Botulinum Neurotoxin E by Mutational, Functional, and Structural Studies: Glu335Gln is an Apoenzyme. *Biochemistry.* **44**, 8291-8302 (2005).
- M Becker, J Bunikis, B Lade, J Dunn, A Barbour, C Lawson. Structural Investigation of *Borrelia burgdorferi* OspB, a Bactericidal Fab Target. *J. Biol. Chem.* **280** (17), 17363-17370 (2005).
- D Colletuori, R Reczkowski, F Emig, E Cama, J Cox, L Scolnick, K Compher, K Jude, S Han, et al. Probing the Role of the Hyper-Reactive Histidine Residue of Arginase. *Arch. Biochem. Biophys.* **444** (1), 15-26 (2005).
- L Di Costanzo, G Sabio, A Mora, P Rodriguez, A Ochoa, F Centeno, D Christianson. Crystal Structure of Human Arginase I at 1.29-Angstrom Resolution and Exploration of Inhibition in the Immune Response. *Proc Natl Acad Sci USA.* **102** (37), 13058-13063 (2005).
- G Georgiev, P Cebe, M Capel. Effects of Nematic Polymer Liquid Crystal on Crystallization and Structure of PET/Vectra Blends. *J. Mater. Sci.* **40** (5), 1141-1152 (2005).
- B Grasberger, T Lu, C Schubert, D Parks, T Carver, H Koblish, M Cummings, L Lafrance, K Milkiewicz. Discovery and Cocystal Structure of Benzodiazepinedione HDM2 Antagonists that Activate. *J. Med. Chem.* **48**, 909 (2005).
- G Hsu, X Huang, N Luneva, N Geacintov, L Beese. Structure of a High Fidelity DNA Polymerase Bound to a Benzo[A]Pyrene Adduct that Blocks Replication. *J. Biol. Chem.* **280**, 3764 (2005).
- D Huang, A Paydar, M Zhuang, M Waddell, J Holton, B Schulman. Structural Basis for Recruitment of Ubc12 by an E2 Binding Domain in NEDD8's E1. *Mol. Cell.* **17** (3), 341-350 (2005).
- W Li, S Kamtekar, Y Xiong, G Sarkis, N Grindley, T Steitz. Structure of a Synaptic gamma delta Resolvase Tetramer Covalently Linked to Two Cleaved DNAs. *Science.* **309**, 1210 (2005).
- F Perrino, S Harvey, S McMillin, T Hollis. The Human TREX2 3'-5' Exonuclease Structure Suggests a Mechanism for Efficient Nonprocessive DNA Catalysis. *J. Biol. Chem.* **280** (15), 15212-15218 (2005).
- D Shi, X Yu, L Roth, M Hiroki, Y Hathout, N Allewell, M Tuchman. Expression, Purification, Crystallization and Preliminary X-ray Crystallographic Studies of a Novel Acetylcitrulline deacetylase from *Xanthomonas Campestris*. *Acta Cryst. F.* **61**, 676-679 (2005).
- C Simmons, Q Hao, M Stipanuk. Preparation, Crystallization and X-ray Diffraction Analysis to 1.5 Å Resolution of Rat Cysteine Dioxygenase, a Mononuclear Iron Enzyme Responsible for Cysteine Thiol Oxidation. *Acta Cryst. F.* **F61**, 1013-1016 (2005).
- A Soares, Y Vehter. Experimental methods for measuring accurate high-amplitude phases and their importance in isomorphous replacement experiments. *Acta Cryst. D.* **D61**, 1521-1527 (2005).
- J Truglio, B Rhau, D Croteau, L Wang, M Skorvaga, E Karakas, M DellVecchia, H Wang, B Van Houten, C Kisker. Structural Insights Into the First Incision Reaction During Nucleotide Excision Repair. *EMBO J.* **24**, 885-894 (2005).
- A Varma, R Brown, G Birrane, J Ladias. Structural Basis for Cell Cycle Checkpoint Control by the BRCA1-CtIP Complex. *Biochemistry.* **44**, 10941-10946 (2005).
- L Vedula, D Cane, D Christianson. Role of Arginine-304 in the Diphosphate-Triggered Active Site Closure Mechanism of Trichodiene Synthase. *Biochemistry.* **44**, 12719 (2005).
- J Wang, K Stieglitz, E Kantrowitz. Metal Specificity is Correlated with Two Crucial Active Site Residues in *Escherichia coli* Alkaline Phosphatase. *Biochemistry.* **44**, 8378-8386 (2005).
- A Yamashita, S Singh, T Kawate, Y Jin, E Gouaux. Crystal Structure of a Bacterial Homologue of Na⁺/Cl⁻-Dependent Neurotransmitter Transporters. *Nature.* **437**, 215 (2005).
- Q Ye, I Imriskova-Sosova, B Hill, Z Jia. Identification of Disulfide Switch in BsSco, a Member of the Sco Family of Cytochrome c Oxidase Assembly Proteins. *Biochemistry.* **44**, 2934-2942 (2005).

Beamline X12C

- M Becker, J Bunikis, B Lade, J Dunn, A Barbour, C Lawson. Structural Investigation of *Borrelia burgdorferi* OspB, a Bactericidal Fab Target. *J. Biol. Chem.* **280** (17), 17363-17370 (2005).
- J Benach, W Edstrom, I Lee, K Das, B Copper, R Xiao, J Liu, B Rost, T Acton, et al.. The 2.35 Angstrom Structure of the TenA Homolog from *Pyrococcus furiosus* Supports an Enzymatic Function in Thiamine Metabolism. *Acta Cryst. D* **61**, 589-598 (2005).
- J D'Aquino, J Tetenbaum-Novatt, A White, F Berkovitch, D Ringe. Mechanism of Metal Ion Activation of the Diphtheria Toxin Repressor DtxR. *Proc Natl Acad Sci USA* **102** (51), 18408-18413 (2005).
- L Feng, S Zhou, L Gu, D Gell, J MacKay, M Weiss, A Gow, Y Shi. Structure of Oxidized Alpha-Haemoglobin Bound to AHSP Reveals a Protective Mechanism for HAEM. *Nature* **435**, 697 (2005).
- Q Han, Y Gao, H Robinson, H Ding, S Wilson, J Li. Crystal Structures of *Aedes Aegypti* Kynurenine Aminotransferase. *FEBS Lett.* **272**, 2198 (2005).
- M Hu, P Li, L Song, P Jeffrey, T Chernova, K Wilkinson, R Cohen, Y Shi. Structure and Mechanisms of the Proteasome-associated Deubiquitinating Enzyme USP14. *EMBO J.* **24** (21), 3747 (2005).
- Q Huai, H Wang, Y Liu, H Kim, D Toft, H Ke. Structures of the N-Terminal and Middle Domains of *E. Coli* Hsp90 and Conformation Changes Upon ADP Binding. *Structure* **13**, 579-590 (2005).
- M Huang, A Mazar, G Parry, A Higazi, A Kuo, D Cines. Crystallization of Soluble Urokinase Receptor (suPAR) in Complex with Urokinase Amino-Terminal Fragment (1-143). *Acta Cryst. D* **61**, 697-700 (2005).
- L Jin, P Pandey, R Babine, J Gorga, K Seidl, E Gelfand, D weaver, S Abdel-Meguid, J Strickler. Crystal Structures of the FXIA Catalytic Domain in Complex with Ecotin Mutants Reveal Substrate-Like Interactions. *J. Biol. Chem.* **280**, 4704 (2005).
- L Jin, P Pandey, R Babine, D Weaver, S Abdel-Meguid, J Stricker. Mutation of Surface Residues to Promote Crystallization of Activated Factor XI as a Complex with Benzamidine: an Essential Step for the Iterative Structure-Based Design of Factor XI Inhibitors. *Acta Cryst. D* **61**, 1418-1425 (2005).
- T Jonsson, M Murray, L Johnson, L Poole, W Lowther. Structural basis for the retroreduction of inactivated peroxiredoxins by human sulfiredoxin. *Biochemistry* **44**, 8634-8642 (2005).
- C Kielkopf, S Luecke, M Green. U2AF-Homology-Motifs: Protein Recognition in the RRM World. *Genes Dev.* **18**, 1513-1526 (2005).
- D Kumaran, S Eswaramoorthy, F Studier, S Swaminathan. Structure and Mechanism of ADP-Ribose-1''-Monophosphatase (Appr-1''-Pase), A Ubiquitous Cellular Processing Enzyme. *Protein Sci.* **14**, 719 (2005).
- A Moreno, M Rivera. Conceptions and First Results on the Electrocrystallization Behaviour of Ferritin. *Acta Cryst. D* **61**, 1678-1681 (2005).
- H Nam, F Poy, H Saito, C Frederick. Structural Basis for the Function and Regulation of the Receptor Protein Tyrosine Phosphatase CD45. *J. Exp. Med.* **201**, 441 (2005).
- F Perrino, S Harvey, S McMillin, T Hollis. The Human TREX2 3'-5' Exonuclease Structure Suggests a Mechanism for Efficient Nonprocessive DNA Catalysis. *J. Biol. Chem.* **280** (15), 15212-15218 (2005).
- M Safo, Q Zhao, T Ko, F Musayev, H Robinson, N Scarsdale, A Wang, G Archer. Crystal Structures of the BLAI Repressor from *Staphylococcus aureus* and its Complex with DNA: Insights into Transcriptional Regulation of the BLA and MEC Operons. *J. Bacteriol.* **187**, 1833 (2005).
- J Schuermann, S Prewitt, C Davies, S Deutscher, J Tanner. Evidence for Structural Plasticity of Heavy Chain Complementarity-determining Region 3 in Antibody-ssDNA Recognition. *J. Mol. Biol.* **347**, 965 - 978 (2005).
- N Silvaggi, H Josephine, A Kuzin, R Nagarajan, R Pratt, J Kelly. Crystal Structures of Complexes Between the R61 DD-Peptidase and Peptidoglycan-Mimetic Beta-Lactams: A Non-Covalent Complex with a "Perfect Penicillin". *J. Mol. Biol.* **345**, 521-533 (2005).
- D Snyder, Y Chen, N Denissova, T Acton, J Aramini, M Ciano, R Karlin, J Liu, P Manor, et al.. Comparisons of NMR Spectral Quality and Success in Crystallization Demonstrate that NMR and X-ray Crystallography are Complementary Methods for Small Protein Structure Determination. *J. Am. Chem. Soc.* **127**, 16505-16511 (2005).
- A Stein, G Fuchs, C Fu, S Wolin, K Reinisch. Structural Insights into RNA Quality Control: The Ro Autoantigen Binds Misfolded RNAs Via its Central Cavity. *Cell* **121** (4), 529-539 (2005).
- S Townson, J Samuelson, S Xu, A Aggarwal. Implications for Switching Restriction Enzyme Specificities from the Structure of BstYI Bound to a BglII DNA Sequence. *Structure* **13** (5), 791-801 (2005).
- A Weichsel, E Maes, J Anderson, J Valenzuela, T Shokhireva, F Walker, W Montfort. Heme-Assisted S-Nitrosation of a Proximal Thiolate in a Nitric Oxide Transport Protein. *Proc Natl Acad Sci USA* **102**, 594-599 (2005).
- C Wilson, T Kajander, L Regan. The Crystal Structure of NLPI. A Prokaryotic Tetratricopeptide Repeat Protein with a Globular Fold. *FEBS Lett.* **272**, 166 (2005).
- S Wright, V Rath, P Genereux, D Hageman, C Levy, L McClure, S McCoid, R McPherson, T Schelhorn, et al.. 5-Chloroindoloyl Glycine Amide Inhibitors of Glycogen Phosphorylase: Synthesis, In Vitro, In Vivo, and X-ray Crystallographic Characterization. *BioOrg. Med. Chem.* **15**, 459 (2005).
- Z Yang, J Horton, R Maunus, G Wilson, R Roberts, X Cheng. Structure of HinP1I Endonuclease Reveals a Striking Similarity to the Monomeric Restriction Enzyme MspI. *Nucleic Acids Res.* **33** (6), 1892-1901 (2005).
- Y Zuo, Y Wang, A Malhotra. Crystal Structure of *Escherichia coli* RNase D, an Exoribonuclease Involved in Structured RNA Processing. *Structure* **13** (7), 973-984 (2005).

Beamline X14A

- E Akdgan, C Rawn, W Porter, E Payzant, A Safari. Size Effects in PbTiO₃ nanocrystals: Effect of Particle Size on Spontaneous Polarization and Strains. *J. Appl. Phys.* **97**, 084305 (2005).
- K Kewalramani, G Evmenenko, C YU, K Kim, J Kmetko, P Dutta. Evidence of Surface Reconstruction During 'Bioinspired' Inorganic Nucleation at an Organic Template. *Surf. Sci. Lett.* **591**, L286-L291 (2005).
- J Li, S Moss, Y Zhang, A Mascarenhas, J Bai. X-ray Characterization of Atomic-Layer Superlattices. *J. Phys. D: Appl. Phys.* **38**, A147-A153 (2005).
- J Li, D Stokes, O Caha, S Ammu, J Bai, K Bassler, S Moss. Morphological Instability in InAs/GaSb Superlattices Due to Interfacial Bonds. *Phys. Rev. Lett.* **95**, 096104 (2005).
- E Ma. Alloys Created Between Immiscible Elements. *Prog. Mater. Sci.* **50**, 413-509 (2005).
- N Roberts, S Jaradat, L Hirst, Y Wang, S Wang, Z Liu, C Huang, J Bai, R Pinidak, H Gleeson. Biaxiality and Temperature Dependence of 3- and 4-layer Intermediate Smectic Phase

Structures as Revealed by resonant X-ray Scattering. *Europhys. Lett.* **72** (6), 976-982 (2005).

- T Varga. Synthesis and Characterization of Some Low and Negative Thermal Expansion Materials. Ph.D. Thesis. Georgia Institute of Technology, Atlanta. (2005).
- P Williams, J Biernacki, C Rawn, L Walker, J Bai. Microanalytical and Computational Analysis of Class F Fly Ash. *ACI Mater. J.* **102**, 330-337 (2005).
- K Ye, D Patel. RNA Silencing Suppressor p21 of Beet Yellows Virus Forms an RNA binding Octameric Ring Structure. *Structure*. **13** (9), 1375-1384 (2005).

Beamline X15A

- D Connor, D Sayers, D Sumner, Z Zhong. Identification of Fatigue Damage in Cortical Bone by Diffraction Enhanced Imaging. *Nucl. Instrum. Meth. A*. **548** (1-2), 234-239 (2005).
- M Hasnah, C Parham, E Pisano, Z Zhong, O Oltulu, D Chapman. Mass Density Images from the Diffraction Enhanced Imaging Technique. *Phys. Med. Biol.* **32**, 549-552 (2005).
- X Lai, K Roberts, M Bedzyk, P Lyman, L Cardoso, J Sasaki. Structure of Habit-Modifying trivalent Transition Metal Cations (Mn³⁺, Cr³⁺) in Nearly Perfect Single Crystals of Potassium Dihydrogen Phosphate as Examined by X-ray Standing Waves, X-ray Absorption Spectroscopy, and Molecular Modeling. *Chem. Mater.* **17**, 4053-4061 (2005).
- J Li, J Williams, Z Zhong, K Kuettner, M Aurich, J Mollenhauer, C Muehleman. Reliability of Diffraction Enhanced Imaging for Assessment of Cartilage Lesions, Ex Vivo. *Osteoarthr. Cartilage*. **13**, 187-197 (2005).
- J Libera. In situ X-ray Structural Analysis of Polynucleotide Surface Adsorption and Metal-Phosphonate Self-Assembled Multilayers. Ph.D. Thesis. Northwestern University, Evanston. (2005).
- C Muehleman, J Li, K Kuettner, Z Zhong. Diffraction Enhanced X-ray Imaging of Musculoskeletal Lesions. *Osteoarthr. Cartilage*. **12**, s117-s117 (2005).
- M Teng. Use of Diffraction Enhanced Imaging to Determine the X-ray Refractive Indices of Various Tissues at Biologically-Relevant Energies. *The J. of Young Investigators*. **13**, 340 (2005).
- M Teng, Z Zhong. Use of Diffraction Enhanced Imaging to Determine the X-ray Refractive Indices of Various Tissues at Biologically-Relevant Energies. *The J. of Young Investigators*. **12**, online (2005).
- W Thomlinson, P Suortti, D Chapman. Recent Advances in Synchrotron Radiation Medical Research. *Nucl. Instrum. Meth. A*. **543** (1), 288-296 (2005).
- A Wagner, M Aurich, N Sieber, M Stoessel, W Wetzel, K Schmuck, M Lohmann, B Reime, J Metge, et al.. Options and Limitations of Joint cartilage Imaging: DEI in Comparison to MRI and Sonography. *Nucl. Instrum. Meth. A*. **548**, 47-53 (2005).
- M Wernick, L Chapman, O Oltulu, Z Zhong. Imaging Method Based on Attenuation, Refraction and Ultra-small-angle-scattering of X-rays. US Patent No. US 6,947,521 B2. (2005).
- M Wernick, J Brankov, D Chapman, Y Yang, E Pisano, C Parham, C Muehleman, Z Zhong, M Anastasio. Physical Model of Image formation in Multiple-Image Radiography. *SPIE: Developments in X-ray Tomography IV*, Vol 5535, p. 369-379, sponsored by SPIE. (2005).
- T Yuasa, H Sugiyama, Z Zhong, A Maksimenko, F Dilmanian, T Akatsuka, M Ando. High-Pass-Filtered Diffraction Microtomography by Coherent Hard X rays for Cell Imaging: Theoretical and Numerical Studies of the Imaging and Reconstruction Principles. *J. Opt. Soc. Am. A*. **22** (12), 2622-2634 (2005).

Beamline X15B

- F Alamgir, H Jain, D Williams, R Schwarz. Sub-Nanoscale Structural Origin of the Stability of the Pd-Ni-P Model Bulk Metallic Glass. *The Science of Complex Alloy Phases*, p. 163-182, TMS, Warrendale. (2005).

Beamline X16A

- S Ghose, I Robinson, P Bennett, F Himpsel. Structure of Double Row Quantum Wires in Au/Si(5 5 3). *Surf. Sci.* **581** (2-3), 199-206 (2005).
- S Ghose, P Bennett, I Robinson. Clustering of Au on the Faulted Half of the Si(111)- 7 x 7 Unit Cell. *Phys. Rev. B*. **71**, 073407 (2005).

Beamline X16B

- L Yang, M Fukuto. Modulated Phase of Phospholipids with a Two-Dimensional Square Lattice. *Phys. Rev. E*. **72**, 010901(R) (2005).

Beamline X16C

- A Frenkel, Y Feldman, V Lyahovitskaya, E Wachtel, I Lubomirsky. Microscopic Origin of Polarity in Quasiamorphous BaTiO₃. *Phys. Rev. B*. **71**, 1-1 (2005).
- A Frenkel, S Nemzer, I Pister, L Soussan, T Harris, Y Sun, M Rafailovich. Size-Controlled Synthesis and Characterization of Thiol-Stabilized Gold Nanoparticles. *J. Chem. Phys.* **123**, 1 (2005).
- M Pfeifer, O Robach, B Ocko, I Robinson. Thickness-Related Instability of Cu Thin Films on Ag(100). *Physica B*. **357**, 152-158 (2005).

Beamline X17B1

- K Bertagnolli, M Vail, J Qian, Y Zhao. High-Energy Synchrotron X-Ray Investigation of Residual Stress/Strain and Metal Distribution in Polycrystalline Diamond Compacts. *The First International Industrial Diamond Conference*, Vol , p. 5, sponsored by Element Six, UK, US Synthetic, USA. (2005).
- G Carini, G Camarda, Z Zhong, D Siddons, A Bolotnikov, G Wright, B Barber, C Arnone. High-Energy X-ray Diffraction and Topography Investigation of CdZnTe. *2004 U.S. Workshop on the Physics and Chemistry of II-VI Materials*, Vol , p. 804-810, sponsored by TMS, Air Force Res. Lab., Off. of Naval Res., U.S. Navy E-O Center Penn State Uni., U.S. Army SDMC. U.S. Army Res. Lab. U.S. Army RDECOM CERDEC Night Vision & Electronic Sensors Directorate. (2005).
- G Carini, G Camarda, Z Zhong, D Siddons, A Bolotnikov, G Wright, B Barber, C Arnone, R James. High-Energy X-ray Diffraction and Topography Investigation of CdZnTe. *J. Electron. Mater.* **34** (6), 804-810 (2005).
- M Croft, Z Zhong, N Jisrawi, I Zakharchenko, R Holtz, Y Gulak, J Skaritka, T Fast, K Sadananda, T Tsakalakos. Strain Profiling of Fatigue Crack Overload Effects Using Energy Dispersive X-Ray Diffraction. *Int. J. Fatigue*. **27**, 1408-1419 (2005).
- F Dilmanian, Y Qu, S Liu, C Cool, J Gilbert, J Hainfeld, C Kruse, J Laterra, D Lenihan, et al.. X-ray Microbeams: Tumor Therapy and Central Nervous System Research. *Nucl. Instrum. Meth. A*. **548** (1-2), 30-37 (2005).
- M Fernandez-Garcia, X Wang, C Bolver, A Iglesias-Juez, J Hanson, J Rodriguez. Ca Doping of Nanosize Ce-Zr and Ce-Tb

- Solid Solutions: Structural and Electronic Effects. *Chem. Mater.* **17**, 4181-4193 (2005).
- M Hasnah, C Parham, E Pisano, Z Zhong, O Oltulu, D Chapman. Mass Density Images from the Diffraction Enhanced Imaging Technique. *Phys. Med. Biol.* **32**, 549-552 (2005).
- G Shirane, G Xu, P Gehring. Dynamics and Structure of PMN and PZN. *Ferroelectr.* **321**, 7-19 (2005).
- B Unks, R Bruni, H Eguchi, P Gorenstein, S Romaine. Long-term Stability and High Energy Reflectivity Measurements of Depth Graded Multilayer Coatings for X-ray Optics. American Astronomical Society, Washington. Prepared for American Astronomical Society Meeting 205. (2005).
- X Wang, J Rodriguez, J Hanson, D Gamarra, A Martinez-Arias, M Fernandez-Garcia. Unusual Physical and Chemical Properties of Cu in Ce_{1-x}Cu_xO₂ Oxides. *J. Phys. Chem. B* **109**, 19595-19603 (2005).

Beamline X17B2

- B Li, J Zhang. Pressure and Temperature Dependence of Elastic Wave Velocity of MgSiO₃ Perovskite and the Composition of the Lower Mantle. *Phys. Earth Planet. Interiors* **151** (1-2), 143-154 (2005).
- B Li, J Kung, T Uchida, Y Wang. Pressure Calibration to 20 GPa by use of Simultaneous Ultrasonic and X-ray Techniques. *J. Appl. Phys.* **98**, 13521 (2005).
- W Liu, J Kung, B Li. Elasticity of San Carlos olivine to 8 GPa and 1073 K. *Geophys. Res. Lett.* **32** (16), L16301 (2005).
- G Voronin, C Pantea, T Zerda, L Wang, Y Zhao. Thermal Equation-of-State of Osmium: A Synchrotron X-ray Diffraction Study. *J. Phys. Chem. Solids* **66** (5), 705-710 (2005).
- J Zhang, Y Zhao, H Xu, M Zelinskas, L Wang, Y Wang, T Uchida. Pressure-Induced Amorphization and Phase Transformations in beta-LiAlSiO₄. *Chem. Mater.* **17**, 2817-2824 (2005).
- J Zhang, Y Zhao, C Pantea, J Qian, L Daemen, P Rigg, R Hixson, C Greeff, G Gray III, et al.. Experimental Constraints on the Phase Diagram of Elemental Zirconium. *J. Phys. Chem. Solids* **66** (7), 1213-1219 (2005).
- Y Zhao, J Zhang, C Pantea, J Qian, L Daemen, P Rigg, R Hixson, G Gray, III, Y Yang, et al.. Thermal Equations of State of the alpha, beta, and omega Phases of Zirconium. *Phys. Rev. B* **71**, 184119 (2005).

Beamline X17B3

- V Levitas, Y Ma, J Hashemi. Transformation-Induced Plasticity and Cascading Structural changes in Hexagonal Boron Nitride under High Pressure and Shear. *Appl. Phys. Lett.* **86**, 071912 (2005).
- Y Ma, M Somayazulu, G Shen, H Mao, J Shu, R Hemley. X-ray Diffraction Studies of Iron to Earth's Core Conditions. *New Developments in High-Pressure Minerals Physics and Applications to the Earth's Interior*, p. 455, Elsevier, Amsterdam. (2005).

Beamline X17C

- T Duffy. Synchrotron Facilities and the Study of Deep Planetary Interiors. *Rep. Prog. Phys.* **68**, 1811 (2005).
- Y Feng, M Somayazulu, R Jaramillo, T Rosenbaum, E Isaacs, J Hu, H Mao. Energy Dispersive X-ray Diffraction of Charge Density Waves Via Chemical Filtering. *Rev. Sci. Instrum.* **76** (6), 063913 (2005).
- R Hemley, H Mao, V Struzhkin. Synchrotron Radiation and High Pressure: New Light on Materials Under Extreme Conditions'.

- J. Synch. Rad.* **12**, 135-154 (2005).
- B Kiefer, S Shieh, T Duffy, T Sekine. Strength, Elasticity, and Equation of State of Nanocrystalline Cubic Silicon Nitride (c-Si₃N₄) to 68 GPa. *Phys. Rev. B* **72**, 014102 (2005).
- V Levitas, Y Ma, J Hashemi. Transformation-Induced Plasticity and Cascading Structural changes in Hexagonal Boron Nitride under High Pressure and Shear. *Appl. Phys. Lett.* **86**, 071912 (2005).
- H Liu, J Tse, J Hu, Z Liu, L Wang, J Chen, D Weidner, Y Meng, D Hausermann, H Mao. Structural Refinement of the High-Pressure Phase of Aluminum Trihydroxide: In-Situ High-Pressure Angle Dispersive Synchrotron X-ray Diffraction and Theoretical Studies. *J. Phys. Chem. B* **109**, 8857 (2005).
- H Liu, J Chen, J Hu, C Martin, D Weidner, D Hausermann, H Mao. Octahedral Tilting Evolution and Phase Transition in Orthorhombic NaMgF₃ Perovskite Under Pressure. *Geophys. Res. Lett.* **32** (4), L04304 (2005).
- Y Ma, M Somayazulu, G Shen, H Mao, J Shu, R Hemley. X-ray Diffraction Studies of Iron to Earth's Core Conditions. *New Developments in High-Pressure Minerals Physics and Applications to the Earth's Interior*, p. 455, Elsevier, Amsterdam. (2005).
- J Yang, W Bai, H Rong, Z Zhang, Z Xu, Q Fang, B Yan, T Li, Y Ren, S Chen. Na- and Zn- bearing (Mg,Fe)Al₂O₄ spinel exsolution from ilmenite and magnetite of eclogite in the main hole, CCSD. 2004 AGU meeting, Vol , p. 85(4), sponsored by American Geologic Union. (2005).

Beamline X18A

- A Anderson, J Roques, S Mukerjee, V Murthi, N Markovic, V Stamenkovic. Activation Energies for Oxygen Reduction on Platinum Alloys: Theory and Experiment. *J. Phys. Chem. B* **109**, 1198-1203 (2005).
- K Chung, W Yoon, H Lee, X Yang, J McBreen, B Deng, X Wang, M Yoshio, R Wang, et al.. Comparative Studies Between Oxygen Deficient LiMn₂O₄ and Al-doped LiMn₂O₄. *J. Power Sources* **146**, 226 (2005).
- Y Ein-Eli, R Urian, W Wen, S Mukerjee. Low Temperature Performance of Copper/Nickel Modified LiMn₂O₄ Spinels. *Electrochim. Acta* **50** (9), 1931-1937 (2005).
- C Jing, S Liu, X Meng. Arsenic Leachability and Speciation in Cement Immobilized Water Treatment Sludge. *Chemosphere* **59** (9), 1241-1247 (2005).
- J Jones, E Slamovich, K Bowman. Product and Component Grain and Domain Textures in Ferroelectric Ceramics. *Mater. Sci. Forum* **495-497** (2), 1401-1406 (2005).
- T Key, J Jones, W Shelley, B Iverson, H Li, E Slamovich, A King, K Bowman. Texture and Symmetry Relationships in Piezoelectric Materials. *Mater. Sci. Forum* **495-497**, 13-22 (2005).
- T Key, J Jones, W Shelley, K Bowman. Quantifying Domain Textures in Lead Zirconate Titanate using 022 : 202 and 220 Diffraction Peaks. *Solid State Phenomena* **105**, 379-384 (2005).
- Y Lee, E Elzinga, R Reeder. Cu(II) Adsorption at the Calcite- Water Interface in the Presence of Natural Organic Matter: Kinetic Studies and Molecular-Scale Characterization. *Geochim. Cosmochim. Acta* **69**, 49-61 (2005).
- Z Zhu, T Andelman, M Yin, T Chen, S Ehrlich, S O'Brien, R Osgood, Jr.. Synchrotron X-ray Scattering of ZnO Nanorods: Periodic Ordering and Lattice Size. *J. Mater. Res.* **20** (4), 1033 (2005).
- Z Zhu, T Chen, Y Gu, J Warren, R Osgood, Jr.. Zinc Oxide Nanowires Grown by Vapor-Phase Transport using Selected Metal Catalysts: A Comparative Study. *Chem. Mater.* **17**, 4227-4234 (2005).

Beamline X18B

- A Abakumov, M Rozova, E Antipov, J Hadermann, G Van Tendeloo, M Lobanov, M Greenblatt, M Croft, E Tsiper, et al.. Synthesis, Cation Ordering, and Magnetic Properties of the $(\text{Sb}_{1-x}\text{Pbx})_2(\text{Mn}_{1-y}\text{Sby})\text{O}_4$ Solid Solutions with the Sb_2MnO_4 -Type Structure. *Chem. Mater.* **17**, 1123-1134 (2005).
- O Alexeev, S Chin, M Engelhard, L Ortiz-Soto, M Amiridis. Effects of Reduction Temperature and Metal-Support Interactions on the Catalytic Activity of Pt/g- Al_2O_3 and Pt/ TiO_2 for the Oxidation of CO in the Presence and Absence of H_2 . *J. Phys. Chem. B*. **109** (49), 23430-23443 (2005).
- O Alexeev, F Li, M Amiridis, B Gates. Effects of Adsorbates on Supported Platinum and Iridium Clusters: Characterization in Reactive Atmospheres and During Alkene Hydrogenation Catalysis by X-ray Absorption Spectroscopy. *J. Phys. Chem. B*. **109** (6), 2338-2349 (2005).
- S Bare, S Kelly, W Sinkler, J Low, F Modica, S Valencia, A Corma, L Nemeth. Uniform Catalytic Site in Sn-beta Zeolite Determined using X-ray Absorption Fine Structure. *J. Am. Chem. Soc.* **127**, 12924-12932 (2005).
- V Bhirud, H Iddir, N Browning, B Gates. Intact and Fragmented Triosmium Clusters on MgO: Characterization by X-ray Absorption Spectroscopy and High-Resolution Transmission Electron Microscopy. *J. Phys. Chem. B*. **109**, 12738-12741 (2005).
- R Bindu, S Pandey, A Kumar, S Khalid, A Pimpale. Local Distortion of MnO_6 Octahedron in $\text{La}_{1-x}\text{Sr}_x\text{MnO}_{3+\Delta}$ ($x=0.1-0.9$): An EXAFS Study. *J. Phys.: Condens. Matter*. **17** (41), 6393-6404 (2005).
- S Bluskov, J Arocena, O Omotoso, J Young. Uptake, Distribution and Speciation of Chromium. *Int. J. Phytoremediation*. **7**, 153-165 (2005).
- T Chen, J Dutrizac, S Beauchemin. Characterization of Gold in the Anodes and Anode Slimes from a European Copper Refinery. *European Metalurgical Conference*, Vol 1, p. 165-182, sponsored by GDMB Gesellschaft für. (2005).
- E Chenu, G Jacobs, A Crawford, R Keogh, P Patterson, D Sparks, B Davis. Water-gas Shift: an Examination of Unpromoted and Pt Promoted MgO and Tetragonal and Monoclinic ZrO_2 by In-Situ DRIFTS. *Appl. Catal. B*. **59**, 45-56 (2005).
- J Dutrizac, T Chen, S Beauchemin. The Behavior of Thallium(III) During Jarosite Precipitation. *Hydrometallurgy*. **79**, 138-153 (2005).
- O Font, X Querol, F Huggins, J Chimenos, A Fernández, S Burgos, F Peña. Speciation of Major and Selected Trace Elements in IGCC Fly Ash. *Fuel*. **84**, 1364-1371 (2005).
- K Galbreath, R Schulz, D Toman, C Nyberg, F Huggins, G Huffman, E Zillioux. Nickel and Sulfur Speciation of Residual Oil Fly Ashes from Two Electric Utility Steam-Generating Units. *J. Air Waste Manage. Assoc.* **55**, 309-318 (2005).
- A Ganjoo, H Jain, S Khalid, C Pantano. Structural Modification of Ge-Se Amorphous Films with the Addition of Sb. *Philos. Mag. Lett.* **85** (10), 503-512 (2005).
- F Goodarzi, F Huggins. Speciation of Arsenic in Canadian Subbituminous and Bituminous Feed Coals and their Ash Byproducts. *Energ. Fuel*. **19**, 905-915 (2005).
- J Guzman, B Anderson, C Vinod, K Ramesh, J Niemantsverdriet, B Gates. Synthesis and Reactivity of Dimethyl Gold Complexes Supported on MgO: Characterized by Infrared and X-ray Absorption Spectroscopies. *Langmuir*. **21**, 3675-3683 (2005).
- J Guzman, S Carrettin, J Fierro-Gonzalez, Y Hao, B Gates, A Corma. CO oxidation Catalyzed by Supported Gold: Cooperation Between Gold and Nanocrystalline Rare-Earth Supports forms Reactive Surface Superoxide and Peroxide Species. *Angew. Chem. Int. Ed.* **44** (30), 4778-4781 (2005).
- G Jacobs, P Patterson, U Graham, A Crawford, A Dozier, B Davis. Catalytic Links Among the Water-Gas shift, Water-Assisted Formic Acid Decomposition, and Methanol Steam Reforming Reactions over Pt Promoted Thoria. *J. Catal.* **235**, 79-91 (2005).
- G Jacobs, U Graham, E Chenu, P Patterson, A Dozier, B Davis. Low Temperature Water Gas Shift: Impact of Pt Promoter Loading on the Partial Reduction of Ceria and consequences for Catalyst Design. *J. Catal.* **229**, 499-512 (2005).
- G Jacobs, S Ricote, P Patterson, U Graham, A Dozier, S Khalid, E Rhodus, B Davis. Low Temperature Water-Gas Shift: Examining the Efficiency of Au as a Promoter for Ceria-Based Catalysts Prepared by CVD of a Au Precursor. *Appl. Catal. A*. **292**, 229-243 (2005).
- C Jing, X Meng, S Liu, S Baidas, R Patraju, C Christodoulatos, G Korfiatis. Surface Complexation of Organic Arsenic on Nanocrystalline Titanium Oxide. *J. Colloid Interface Sci.* **290** (1), 14-21 (2005).
- Y Lee, E Elzinga, R Reeder. Sorption Mechanisms of Zinc on Hydroxyapatite: Systematic Uptake Studies and EXAFS Spectroscopy Analysis. *Environ. Sci. Tech.* **39**, 4042-4048 (2005).
- A Liang, V Bhirud, J Ehresmann, P Kletnieks, J Haw, B Gates. A Site-Isolated Rhodium-Diethylene Complex Supported on Highly Dealuminated Y Zeolite: Synthesis and Characterization. *J. Phys. Chem. B*. **109**, 24236-24243 (2005).
- J Roques, A Anderson, V Murthi, S Mukerjee. Potential Shift for OH(ads) Formation on the Pt Skin on $\text{Pt}_3\text{Co}(111)$ Electrodes in Acid. *J. Electrochem. Soc.* **152**, E193 (2005).
- A Rouff, E Elzinga, R Reeder, N Fisher. The Influence of pH on the Kinetics, Reversibility and Mechanism of Pb(II) Sorption at the Calcite-Water Interface. *Geochim. Cosmochim. Acta*. **69** (22), 5173-5186 (2005).
- S Sen, B Aitken, S Khalid. Short-Range Structure and Chemical Order in in-Ge Sulfide and Selenide Glasses by X-ray Absorption Fine Structure Spectroscopy. *J. Non-Cryst. Solids*. **351** (19-20), 1710-1715 (2005).
- Y Shu, S Oyama. Synthesis, Characterization, and Hydrotreating Activity of Carbon-Supported Transition Metal Phosphides. *Carbon*. **43**, 7 (2005).
- M Teliska, V Murthi, S Mukerjee, D Ramaker. Correlation of Water Activation, Surface Properties, and Oxygen Reduction Reactivity of Supported Pt-M/C Bimetallic Electrocatalysts Using XAS. *J. Electrochem. Soc.* **152**, A2159 (2005).
- X Wang, J Rodriguez, J Hanson, M Perez, J Evans. In Situ Time-Resolved Characterization of Au-CeO₂ Catalysts During Water Gas Shift Reactions: presence of Au and O Vacancies in the Active Phase. *J. Chem. Phys.* **123**, 221101 (2005).
- S Wasson, W Linak, B Gullett, C King, A Touati, F Huggins, Y Chen, N Shah, G Huffman. Emissions of Chromium, Copper, Arsenic, and PCDDs/Fs from Open Burning of CCA-Treated Wood. *Environ. Sci. Tech.* **39** (22), 8865-8876 (2005).
- Y Xi, C Reed, Y Lee, S Oyama. Acetone Oxidation using Ozone on Manganese Oxide Catalysts. *J. Phys. Chem. B*. **109**, 17537-17596 (2005).
- W Yan, B Chen, S Mahurin, V Schwartz, D Mullins, A Lupini, S Pennycook, S Dai, S Overbury. Preparation and Comparison of Supported Gold Nanocatalysts on Anatase, Brookite, Rutile, and P25 Polymorphs of TiO_2 for Catalytic Oxidation of CO. *J. Phys. Chem. B*. **109**, 10676-10685 (2005).
- W Yoon, M Balasubramanian, K Chung, X Yang, J McBreen, C Grey, D Fischer. Investigation of the Charge Compensation Mechanism on the Electrochemically Li-Ion Deintercalated $\text{Li}_{1-x}\text{Co}_{1/3}\text{Ni}_{1/3}\text{Mn}_{1/3}\text{O}_2$ Electrode System by Combination of Soft and Hard X-ray Absorption Spectroscopy. *J. Am. Chem. Soc.* **127** (49), 17479-17487 (2005).

Beamline X19A

- A Abakumov, M Rozova, E Antipov, J Hadermann, G Van Tendeloo, M Lobanov, M Greenblatt, M Croft, E Tsiper, et al.. Synthesis, Cation Ordering, and Magnetic Properties of the $(\text{Sb}_{1-x}\text{Pb}_x)_2(\text{Mn}_{1-y}\text{Sb}_y)\text{O}_4$ Solid Solutions with the Sb_2MnO_4 -Type Structure. *Chem. Mater.* **17**, 1123-1134 (2005).
- B Bostick, K Theissen, R Dunbar, M Vairavamurthy. Record of Redox Status in Laminated Sediments from Lake Titicaca: A Sulfur K-Edge X-ray Absorption Near Edge Structure (XANES) Study. *Chem. Geol.* **219**, 163-174 (2005).
- O Font, X Querol, F Huggins, J Chimenos, A Fernández, S Burgos, F Peña. Speciation of Major and Selected Trace Elements in IGCC Fly Ash. *Fuel*. **84**, 1364-1371 (2005).
- F Goodarzi, F Huggins. Speciation of Chromium in Feed Coals and Ash Byproducts from Canadian Power Plants Burning Subbituminous and Bituminous Coals. *Energ. Fuel*. **19**, 2500-2508 (2005).
- C Jing, S Liu, M Patel, X Meng. Arsenic Leachability in Water Treatment Adsorbents. *Environ. Sci. Tech.* **39**, 5481-5487 (2005).
- C Jing, S Liu, X Meng. Arsenic Leachability and Speciation in Cement Immobilized Water Treatment Sludge. *Chemosphere*. **59** (9), 1241-1247 (2005).
- N Khare, D Hesterberg, J Martin. XANES Investigation of Phosphate Sorption in Single and Binary Systems of Iron and Aluminum Oxide Minerals. *Environ. Sci. Tech.* **39**, 2152-2160 (2005).
- Q Lin, M Greenblatt, M Croft. Evolution of Structure and Magnetic Properties in Electron-Doped Double Perovskites, $\text{Sr}_{2-x}\text{La}_x\text{MnWO}_6$ ($0 < x < 1$). *Solid State Chem.* **178** (5), 1356-1366 (2005).
- J Majzlan, S Myneni. Speciation of Iron and Sulfate in Acid Waters: Aqueous Clusters to Mineral Precipitates. *Environ. Sci. Tech.* **39**, 188-194 (2005).
- S Pattanaik. X-ray Diffraction, XAFS and Scanning Electron Microscopy Study of Otolith of a Crevalle Jack Fish (caranx hippos). *Nucl. Instrum. Meth. B*. **229** (3-4), 367-374 (2005).
- S Sato, D Solomon, C Hyland, Q Ketterings, J Lehmann. Phosphorus Speciation in Manure and Manure-Amended Soils Using XANES Spectroscopy. *Environ. Sci. Tech.* **39** (19), 7485-7491 (2005).
- S Sayan, M Croft, N Nguyen, T Emge, E Gusev, H Kim, J Ehrstein, P McIntyre, E Garfunkel. Amorphous to Tetragonal Transition in Ultrathin Zirconia Films: Effect on the Electronic and Dielectric Properties. *Appl. Phys. Lett.* **86** (15), 152902 (2005).
- D Solomon, J Lehmann, I Lobe, C Martinez, S Tveitnes, C Du Preez, W Amelung. Sulphur Speciation and Biogeochemical Cycling in Long-Term Arable Cropping of Subtropical Soils: Evidence From Wet-Chemical Reduction and S K-Edge XANES Spectroscopy. *Eur. J. Soil Sci.*, 1-14 (2005).
- G Veith, M Greenblatt, M Croft, K Ramanujachary, J Hattrick-Simpers, S Lofland, I Nowik. Synthesis and Characterization of $\text{Sr}_3\text{FeMoO}_{6.88}$: An Oxygen-Deficient 2D Analogue of the Double Perovskite $\text{Sr}_2\text{FeMoO}_6$. *Chem. Mater.* **17**, 2562-2567 (2005).
- X Wang, J Hanson, J Rodriguez, C Belver, M Fernandez-Garcia. The Structural and Electronic Properties of Nanostructured $\text{Ce}_{(1-x-y)}\text{Zr}_x\text{Tb}_y\text{O}_2$ Ternary Oxides: Unusual Concentration of Tb^{3+} and Metal-Oxygen-Metal Interactions. *J. Chem. Phys.* **122** (15), 154711 (2005).
- R Wiltfong, S Mitra-Kirtley, O Mullins, B Andrews, G Fujisawa, J Larsen. Sulfur Speciation of Different Kerogens using XANES Spectroscopy. *Energ. Fuel*. **19** (5), 1971-76 (2005).
- S Yoon, L Diener, P Bloom, E Nater, W Bleam. X-ray Absorption

Studies of CH_3Hg^{+} -Binding Sites in Humic Substances. *Geochim. Cosmochim. Acta*. **69**, 1111-1121 (2005).

- F Zhao, J Lehmann, D Solomon, M Fox, S McGrath. Sulphur Speciation and Turnover in Soils: Evidence from Sulphur K-Edge XANES Spectroscopy and Isotope Dilution Studies. *Soil Biol. Biochem.* **38**, 1-8 (2005).

Beamline X19C

- J Bai, X Huang, M Dudley, B Wagner, R Davis, L Wu, Y Zhu. Intersecting Basal Plane and Prismatic Stacking Fault Structures and their Formation Mechanisms in GaN. *J. Appl. Phys.* **98**, 063510-1 - 063510-9 (2005).
- J Bai, M Dudley, L Chen, B Skromme, B Wagner, R Davis, U Chowdhury, R Dupuis. Structural Defects and Luminescence Features in Heteroepitaxial GaN Grown on On-Axis and Misoriented Substrates. *J. Appl. Phys.* **97**, 116101 (2005).
- J Bai, M Dudley, L Chen, B Skromme, P Hartlieb, E Michaels, J Kolis, B Wagner, R Davis, et al.. Relationship of Basal Plane and Prismatic Stacking Faults in GaN to Low Temperature Photoluminescence Peaks at $\sim 3.4\text{eV}$ and $\sim 3.2\text{eV}$. *2004 Materials Research Society Fall Meeting Proceedings*, Vol 81, p. E11.37, sponsored by Materials Research Society. (2005).
- G Dhanaraj, B Raghothamachar, J Bai, H Chung, M Dudley. Synchrotron X-ray Topographic Characterization of Defects in InP Bulk Crystals. *17th Indium Phosphide and Related Materials Conference*, Vol 8th, p. cd rom, (2005).
- M Hollingsworth, M Peterson, J Rush, M Brown, M Abel, A Black, M Dudley, B Raghothamachar, U Werner-Zwanziger, et al.. Memory and Perfection in Ferroelastic Inclusion Compounds. *Cryst. Growth Des.* **5**, 2100-2116 (2005).
- X Huang, J Bai, M Dudley, B Wagner, R Davis, Y Zhu. Step-Controlled Strain Relaxation in Vicinal Surface Epitaxy of Nitrides. *Phys. Rev. Lett.* **95**, 086101-1 - 086101-4 (2005).
- X Huang, J Bai, M Dudley, R Dupuis, U Chowdhury. Exptaxial Tilting of GaN Grown on Vicinal Surfaces of Sapphire. *Appl. Phys. Lett.* **86**, 211916 (2005).
- B Liu, J Edgar, B Raghothamachar, M Dudley, A Sarua, M Kuball, H Meyer, J Lin, H Jiang, et al.. Free Nucleation of Aluminum Nitride Single Crystals in HPBN Crucible by Sublimation. *Mater. Sci. Eng. B*. **117**, 99-104 (2005).
- S Malkova, F Long, R Stahelin, S Pingali, D Murray, W Cho, M Schlossman. X-ray Reflectivity Studies of cPLA?-C2 Domains Adsorbed onto Langmuir Monolayers of SOPC. *Biophys. J.* **89**, 1861 (2005).
- V Noveski, R Schlessler, B Raghothamachar, M Dudley, S Mahajan, S Beaudion, Z Sitar. Seeded Growth of Bulk AlN Crystals and Grain Evolution in Polycrystalline AlN Boules. *J. Cryst. Growth*. **279**, 13-19 (2005).
- S Pingali, T Takiue, G Luo, A Tikhonov, N Ideda, M Aratono, M Schlossman. X-ray Reflectivity and Interfacial Tension Study of the Structure and Phase Behavior of the Interface Between Water and Mixed Surfactant Solutions of $\text{CH}_3(\text{CH}_2)_{19}\text{OH}$ and $\text{CF}_3(\text{CF}_2)_7(\text{CH}_2)_2\text{OH}$ in Hexane. *J. Phys. Chem. B*. **109**, 1210-1225 (2005).
- M Schlossman. X-ray Scattering from Liquid-Liquid Interfaces. *Physica B*. **357** (1-2), 98-105 (2005).
- W Vetter, H Tsuchida, I Kamata, M Dudley. Simulation of Threading Dislocation Images in X-ray Topographs of Silicon Carbide Homo-Epilayers. *J. Appl. Cryst.* **38**, 442-447 (2005).
- Y Wang, G Ali, M Mikhov, V Vaidyanathan, B Skromme, B Raghothamachar, M Dudley. Correlation Between Morphological Defects, Electron Beam Induced Current Imaging, and the Electrical Properties of 4H-SiC Schottky Diodes. *J. Appl. Phys.* **97**, 013540-1 (2005).

Beamline X20A

- H Chen, Y Yao, J Kysar, I Noyan, Y Wang. Fourier Analysis of X-ray Micro-Diffraction Profiles to Characterize Laser Shock Peened Metals. *Int. J. Solids Struct.* **42** (11-12), 3471-3485 (2005).
- F Espinosa-Faller, R Howell, A Garcia-Adeva, S Conradson, A Ignatov, T Tyson, R Farrow, M Toney. Local Atomic Structure of Partially Ordered NiMn in NiMn/NiFe Exchange Coupled Layers: 1. XAFS Measurements and Structural Refinement. *J. Phys. Chem. B.* **109**, 10406-10418 (2005).
- S Kaldor, I Noyan. Flexural Loading of Rectangular Si Beams and Plates. *Mater. Sci. Eng. A.* **399** (1-2), 64-71 (2005).

Beamline X20B

- J Jordan-Sweet, C Detavernier, C Lavoie, P Mooney, M Toney. Applications of Synchrotron X-rays in Microelectronics Industry Research. *Nucl. Instrum. Meth. B.* **241** (1-4), 247-252 (2005).

Beamline X20C

- H Kim, C Detavernier, O van der Staten, S Rossmagel, A Kellock, D Park. Robust TaNx Diffusion Barrier for Cu-Interconnect Technology with Subnanometer Thickness by Metal-Organic Plasma-Enhanced Atomic Layer Deposition. *J. Appl. Phys.* **98**, 014308 (2005).
- S Raoux, C Rettner, J Jordan-Sweet, M Salinga, M Toney. Crystallization Behavior of Phase Change Nanostructures. *European Symposium on Phase Change and Ovonic Science*, Vol. , p. 14, sponsored by Plasmon. (2005).
- T Thomson, S Lee, M Toney, C Dewhurst, Y Ogrin, C Oates, S Sun. Agglomeration and Sintering in Annealed FePt Nanoparticle Assemblies Studied by Small Angle Neutron Scattering and X-ray Diffraction. *Phys. Rev. B.* **72**, 064441 (2005).

Beamline X21

- K Cavicchi, K Berthiaume, T Russell. Solvent Annealing Thin Films of Poly(isoprene-b-lactide). *Polymer.* **46** (25), 11635-11639 (2005).
- J Liao, L Yang, J Grashow, M Sacks. Molecular Orientation of Collagen in Intact Planar Connective Tissues Under Biaxial Stretch. *Acta Biomater.* **1** (1), 45-54 (2005).
- G Lynn, W Heller, A Mayusundari, K Minor, C Peterson. A Model for the Three-Dimensional Structure of Human Plasma Vitronectin from Small-angle Scattering Measurements. *Biochemistry.* **44** (2), 565-574 (2005).
- G Ozaydin, A Ozcan, Y Wang, K Ludwig, H Zhou, R Headrick, D Siddons. Real-Time X-ray Studies of Mo-Seeded Self-Organized Si Nanodot Formation During Low Energy Ar⁺ Ion Bombardment. *Appl. Phys. Lett.* **87**, 163104 (2005).
- Q Qian, T Tyson, W Caliebe, C Kao. High-Efficiency High-energy-Resolution Spectrometer for Inelastic X-ray Scattering. *J. Phys. Chem. Solids.* **66** (12), 2295 (2005).
- A Sehgal, Y Lalatonne, J Berret, M Morvan. Precipitation-Redispersion of Cerium Oxide Nanoparticles with Poly(acrylic acid): Toward Stable Dispersions. *Langmuir.* **21**, 9359-9364 (2005).
- H Yang, M Ling, T Shin, C Ryu, Z Bao. Universal Effects of Solubility and Thermal Annealing for Structure Formation in Regioregular Poly(3-alkyl thiophene) Sereis. *American Chemical Society National Meeting*, Vol 92, p. 295, sponsored by American Chemical Society. (2005).
- H Yang, T Shin, Z Bao, K Cho, C Ryu. Volatile Solvent Solubility

and Thermal Annealing Effects on Regio-regular P3HT Thin Film Structure and Its Correlation with TFT Charge Mobility. *American Chemical Society National Meeting*, Vol 92, p. 604, sponsored by American Chemical Society. (2005).

- H Yang, T Shin, M Ling, K Cho, C Ryu, Z Bao. Conducting AFM and 2D GIXD Studies on Pentacene Thin Films. *J. Am. Chem. Soc.* **127**, 11542-11543 (2005).
- L Yang, M Fukuto. Modulated Phase of Phospholipids with a Two-Dimensional Square Lattice. *Phys. Rev. E.* **72**, 010901(R) (2005).
- H Yang, T Shin, L Yang, K Cho, C Ryu, Z Bao. Effect of Mesoscale Crystalline Structure on the Field-Effett Mobility of Regioregular Poly(3-hexyl thiophene) in Thin-Film Transistors. *Adv. Func. Mater.* **15** (4), 671-676 (2005).

Beamline X22A

- J Fossum, E Gudding, M Fonseca, Y Meheust, E DiMasi, T Gog, C Venkataraman. Observations of Orientational Ordering in Aqueous Suspensions of a Nano-Layered Silicate. *Energy.* **30** (6), 873-883 (2005).
- O Gang, K Alvine, M Fukuto, P Pershan, C Black, B Ocko. Liquids on Topologically Nano-Patterned Surfaces. *Phys. Rev. Lett.* **95**, 217801 (2005).
- F He, B Wells, S Shapiro. Strain Phase Diagram and Domain Orientation in SrTiO₃ Thin Films. *Phys. Rev. Lett.* **94** (17), 176101 (2005).
- F He. Phase Transitions and Properties of Epitaxial Perovskite Films. Ph.D. Thesis. University of Connecticut, Storrs. (2005).
- S Kwak, E DiMasi, Y Han, J Aizenberg, I Kuzmenko. Orientation and Mg Incorporation of Calcite Grown on Functionalized Self-Assembled Monolayers: A Synchrotron X-ray Study. *Cryst. Growth Des.* **5** (6), 2139-2145 (2005).
- M Nelson, N Cain, B Ocko, D Gin, S Hammond, D Schwartz. Periodic Arrays of Interfacial Cylindrical reverse Micelles. *Langmuir.* **21**, 9799-9802 (2005).
- G Shirane, G Xu, P Gehring. Dynamics and Structure of PMN and PZN. *Ferroelectr.* **321**, 7-19 (2005).
- B Smarsly, A Gibaud, W Ruland, D Sturmayer, C Brinker. Quantitative SAXS Analysis of Oriented 2D Hexagonal Cylindrical Silica Mesostructures in Thin Films Obtained from Nonionic Surfactants. *Langmuir.* **21**, 3858-3866 (2005).
- R Turgeman, O Gershevit, M Deutsch, B Ocko, A Gedanken, C Sukenik. Crystallization of Highly Oriented ZnO Microrods on Carboxylic Acid-Terminated SAMs. *Chem. Mater.* **17**, 5048-5056 (2005).
- J Wang, I Robinson, B Ocko, R Adzic. Adsorbate-Geometry Specific Subsurface Relaxation in the CO/Pt(111) System. *J. Phys. Chem. B.* **109** (1), 24 (2005).
- G Xu, H Hiraka, G Shirane, J Li, J Wang, D Viehland. Low Symmetry Phase in (001) BiFeO₃ Epitaxial Constrained Thin Films. *Appl. Phys. Lett.* **86**, 182905 (2005).
- T Xu, M Misner, S Kim, J Sievert, O Gang, B Ocko, T Russell. Selective Solvent Induced Reversible Surface Reconstruction of Diblock Copolymer Thin Films. *New Polymeric Materials*, p. 158-170, Oxford University Press, New York. (2005).

Beamline X22B

- K Cavicchi, K Berthiaume, T Russell. Solvent Annealing Thin Films of Poly(isoprene-b-lactide). *Polymer.* **46** (25), 11635-11639 (2005).
- B Discher, D Noy, J Strzalka, S Ye, C Moser, J Lear, K Blasie, L Dutton. Design of Amphiphilic Protein Maquettes: Controlling

- Assembly, Membrane Insertion, and Cofactor Interactions. *Biochemistry*. **44** (37), 12329-12343 (2005).
- S Dourdain, J Bardeau, M Colas, B Smarsly, A Mehdi, B Ocko, A Gibaud. Determination by X-ray Reflectivity and Small Angle X-ray Scattering of the Porous Properties of Mesoporous Silica Thin Films. *Appl. Phys. Lett.* **86**, 113108 (2005).
- S Dourdain, A Rezaire, A Mehdi, B Ocko, A Gibaud. Real time GISAXS study of Micelle hydration in CTAB templated silica thin films. *Physica B*. **357** (1-2), 180-184 (2005).
- A Grigoriev, O Shpyrko, C Steimer, P Pershan, B Ocko, M Deutsch, B Lin, M Meron, T Graber, J Gebhardt. Surface Oxidation of Liquid Sn. *Surf. Sci.* **575** (3), 223-232 (2005).
- M Henderson, A Gibaud, J Bardeau, A Rennie, J White. A Zirconium Oxide Film Self-Assembled at the Air-Water Interface. *Physica B*. **357** (1-2), 27-33 (2005).
- B Ocko, H Kraack, P Pershan, E Sloutskin, L Tamam, M Deutsch. Crystalline Phases of Alkyl-Thiol Monolayers on Liquid Mercury. *Phys. Rev. Lett.* **94**, 017802 (2005).
- E Sloutskin, C Bain, B Ocko, M Deutsch. Surface Freezing of Chain Molecules at the Liquid-Liquid and Liquid-Air Interfaces. *Faraday Discuss.* **129**, 339-352 (2005).
- E Sloutskin, B Ocko, L Taman, I Kuzmenko, T Gog, M Deutsch. Surface Layering in Ionic Liquids: An X-ray Reflectivity Study. *J. Am. Chem. Soc.* **127**, 7796-7804 (2005).
- L Tamam, H Kraack, E Sloutskin, B Ocko, P Pershan, A Ulman, M Deutsch. Structure of Mercaptobiphenyl Monolayers on Mercury. *J. Phys. Chem.* **109**, 12534-12543 (2005).
- T Xu, M Misner, S Kim, J Sievert, O Gang, B Ocko, T Russell. Selective Solvent Induced Reversible Surface Reconstruction of Diblock Copolymer Thin Films. *New Polymeric Materials*, p. 158-170, Oxford University Press, New York. (2005).
- S Ye, B Discher, J Strzalka, T Xu, S Wu, D Noy, I Kuzmenko, T Gog, K Blasie, et al.. Amphiphilic Four-Helix Bundle Peptides Designed for Light-Induced Electron Transfer Across a Soft Interface. *Nano Lett.* **5** (9), 1658-1667 (2005).
- Beamline X22C**
- M Castro-Colin, W Donner, S Moss, Z Islam, S Sinha, R Nemanich, H Metzger, P Bosecke, T Shulli. Synchrotron X-ray Studies of Vitreous SiO₂ Over Si(001). I. Anisotropic Glass Contribution. *Phys. Rev. B*. **71**, 045310 (2005).
- F He. Phase Transitions and Properties of Epitaxial Perovskite Films. Ph.D. Thesis. University of Connecticut, Storrs. (2005).
- M Hucker, Y Kim, G Gu, J Tranquada, B Gaulin, J Lynn. Neutron Scattering Study on La_{1.9}Ca_{1.1}Cu₂O₆+ δ and La_{1.85}Sr_{0.15}Ca Cu₂O₆+ δ . *Phys. Rev. B*. **71**, 094510 (2005).
- P Lyman, V Shneerson, R Fung, R Harder, E Lu, S Parihar, D Saldin. Atomic-Scale Visualization of Surfaces with X rays. *Phys. Rev. B: Condens. Matter*. **71** (8), 081402-1-4 (2005).
- Beamline X23A2**
- J Ablett, J Woicik, C Kao. New Correction Procedure For X-ray Spectroscopic Fluorescence Data: Simulations and Experiment. *Adv. X-Ray Anal.* **48**, 266-273 (2005).
- F Alamgir, H Jain, D Williams, R Schwarz. Sub-Nanoscale Structural Origin of the Stability of the Pd-Ni-P Model Bulk Metallic Glass. *The Science of Complex Alloy Phases*, p. 163-182, TMS, Warrendale. (2005).
- P Amama, S Lim, D Ciuparu, Y Yang, L Pfefferle, G Haller. Synthesis, Characterization, and Stability of Fe-MCM-41 for Production of Carbon Nanotubes by Acetylene Pyrolysis. *J. Phys. Chem. B*. **109**, 2645-2656 (2005).
- D Ciuparu, P Haider, M Fernandez-Garcia, Y Chen, S Lim, G Haller, L Pfefferle. X-ray Absorption Spectroscopic Investigation of Partially Reduced Cobalt Species in Co-MCM-41 Catalysts During Synthesis of Single-Wall Carbon Nanotubes. *J. Phys. Chem. B*. **109**, 16332-16339 (2005).
- P Haider, Y Chen, S Lim, G Haller, L Pfefferle, D Ciuparu. Application of the Generalized 2D Correlation Analysis to Dynamic Near-Edge X-ray Absorption Spectroscopy Data. *J. Am. Chem. Soc.* **127**, 1906-1912 (2005).
- S Lim, D Ciuparu, Y Chen, Y Yang, L Pfefferle, G Haller. Pore Curvature Effect on the Stability of Co-MCM-41 and the Formation of Size-Controllable Subnanometer Co Clusters. *J. Phys. Chem. B*. **109**, 2285-2294 (2005).
- E Ma. Alloys Created Between Immiscible Elements. *Prog. Mater. Sci.* **50**, 413-509 (2005).
- D McKeown, H Gan, I Pegg. Silver Valence and Local Environments in Borosilicate and Calcium Aluminoborate Waste Glasses as determined from X-ray Absorption Spectroscopy. *J. Non-Cryst. Solids*. **351**, 3826-3833 (2005).
- A Rouff, E Elzinga, R Reeder, N Fisher. The Influence of pH on the Kinetics, Reversibility and Mechanism of Pb(II) Sorption at the Calcite-Water Interface. *Geochim. Cosmochim. Acta*. **69** (22), 5173-5186 (2005).
- M Sahiner, D Downey, S Novak, J Woicik, D Arena. The Local Structural Characterization of the Inactive Clusters in B, Bf₂ and B23 Implanted Si Wafers using X-ray Techniques. *Microelectr. J.* **36**, 522-526 (2005).
- Beamline X23B**
- S Calvin, E Carpenter, V Cestone, L Kurihara, V Harris, E Brown. Automated System for X-Ray Absorption Spectroscopy of Nanoparticle Nucleation and Growth. *Rev. Sci. Instrum.* **76** (1), 016103-1 - 016103-3 (2005).
- Q Huang, G Evmenenko, P Dutta, p Lee, N Armstrong, T Marks. Covalently Bound Hole-Injecting Nanostructures. Systematics of Molecular Architecture, Thickness, Saturation, and Electron-Blocking Characteristics on Organic Light-Emitting Diode Luminance, Turn-on Voltage, and Quantum Efficiency. *J. Am. Chem. Soc.* **127**, 10227-10242 (2005).
- S Morrison, C Cahill, E Carpenter, S Calvin, V Harris. Atomic Engineering of Mixed Ferrite and Core-Shell Nanoparticles. *J. Nanosci. Nanotechnol.* **5** (9), 1323-1344 (2005).
- Q Qian, T Tyson, W Caliebe, C Kao. High-Efficiency High-energy-Resolution Spectrometer for Inelastic X-ray Scattering. *J. Phys. Chem. Solids*. **66** (12), 2295 (2005).
- M Teliska, V Murthi, S Mukerjee, D Ramaker. In Situ Determination of O(H) Adsorption Sites on Pt Based Alloy Electrodes using X-ray Absorption Spectroscopy. *Fundamental Understanding of Electrode Processes in Memory of Professor Ernest B. Yeager*, Vol , p. 212-215, sponsored by The Electrochemical Society. (2005).
- H Yan, P Lee, N Armstrong, A Graham, G Evmenenko, P Dutta, T Marks. High-Performance Hole-Transport Layers for Polymer Light-Emitting Diodes. Implementation of Organosiloxane Cross-Linking Chemistry in Polymeric Electroluminescent Devices. *J. Am. Chem. Soc.* **127**, 3172-3183 (2005).
- A Yang, Z Chen, X Zuo, D Arena, J Kirkland, C Vittoria, V Harris. Cation-Disorder-Enhanced Magnetization in Pulsed-Laser-Deposited CuFe₂O₄ Films. *Appl. Phys. Lett.* **86**, 252510 (2005).
- A Yang, X Zuo, I Chen, Z Chen, C Vittoria, V Harris. Magnetic and Structural Properties of Pulsed Laser Deposited CuFe₂O₄ Films. *J. Appl. Phys.* **97**, 10G107 (2005).
- T Zubkov, A Lucassen, D Freeman, Y Feldman, S Cohen,

- G Evmenenko, P Dutta, M van der Boom. Photoinduced Deprotection and ZnO Patterning of Hydroxyl-Terminated Siloxane-Based Monolayers. *J. Phys. Chem. B.* **109**, 14144-14153 (2005).
- X Zuo, A Yang, S Yoon, J Christodoulides, V G. Harris, C Vittoria. Large Induced Magnetic Anisotropy in Manganese Spinel Ferrite Films. *Appl. Phys. Lett.* **87**, 152505 (2005).
- X Zuo, A Yang, S Yoon, I Christodoulides, V Harris, C Vittoria. Magnetic Properties of Manganese Ferrite Films Grown at Atomic Scale. *J. Appl. Phys.* **97**, 10G103 (2005).
- Beamline X24A**
- J Woicik. Site-Specific X-ray Photoelectron Spectroscopy using X-ray Standing Waves. *Nucl. Instrum. Meth. A.* **547** (1), 227-234 (2005).
- Beamline X24C**
- J Seely, B Kjornrattanawanich, G Holland, R Korde. Response of a SiC Photodiode to Extreme Ultraviolet through Visible Radiation. *Opt. Lett.* **30** (23), 3120 (2005).
- J Seely, U Feldman, G Holland, J Weaver, A Mostovych, S Obenschain, A Schmitt, R Lehmborg, B Kjornrattanawanich, C Back. Absolutely Calibrated Vacuum Ultraviolet Spectra in the 150-250-Nm Range from Plasmas Generated by the Nike Krf Laser. *Phys. Plasmas*. **12** (6), 062701 (2005).
- J Weaver, M Busquet, D Colombant, A Mostovych, U Feldman, M Klapisch, J Seely, C Brown, G Holland. Experimental Benchmark for an Improved Simulation of Absolute Soft-X-ray Emission from Polystyrene Targets Irradiated with the Nike Laser. *Phys. Rev. Lett.* **94**, 045002 (2005).
- D Windt, J Seely, B Kjornrattanawich, Y Uspenskii. Terbium-Based Extreme Ultraviolet Multilayers. *Opt. Lett.* **30** (23), 3186 (2005).
- Beamline X25**
- R Agarwal, T Binz, S Swaminathan. Analysis of Active Site Residues of Botulinum Neurotoxin E by Mutational, Functional, and Structural Studies: Glu335Gln is an Apoenzyme. *Biochemistry*. **44**, 8291-8302 (2005).
- J Avalos, K Bever, C Wolberger. Mechanism of Sirtuin Inhibition by Nicotinamide: Altering the NAD⁺ Cosubstrate Specificity of a Sir2 Enzyme. *Mol. Cell*. **17** (6), 855-868 (2005).
- T Bai, M Becker, A Gupta, P Strike, V Murphy, R Anders, A Batchelor. Structure of AMA1 from Plasmodium falciparum Reveals A Clustering of Polymorphisms that Surround a Conserved Hydrophobic Pocket. *Proc Natl Acad Sci USA*. **102** (36), 12736-12741 (2005).
- T Biswas, H Aihara, M Radman-Livaja, D Filman, A Landy, T Ellenberger. A Structural Basis for Allosteric Control of DNA Recombination by λ Integrase. *Nature*. **435**, 1059 (2005).
- S Bouyain, P Longo, S Li, K Ferguson, D Leahy. The Extracellular Region of ErbB4 Adopts a Tethered Conformation in the Absence of Ligand. *Proc Natl Acad Sci USA*. **102**, 15024-15029 (2005).
- E Campbell, O Pavlova, N Zenkin, F Leon, H Irschik, R Jansen, K Severinov, S Darst. Structural, Functional, and Genetic Analysis of Sorangicin Inhibition of Bacterial RNA Polymerase. *EMBO J.* **24**, 674 (2005).
- S Cho, C Swaminathan, J Yang, M Kerzic, R Guan, M Kieke, D Kranz, R Mariuzza, E Sundberg. Structural Basis of Affinity Maturation and Intramolecular Cooperativity in a Protein-Protein Interaction. *Structure*. **13** (12), 1775-1787 (2005).
- D Colletuori, R Reczkowski, F Emig, E Cama, J Cox, L Scolnick, K Compher, K Jude, S Han, et al. Probing the Role of the Hyper-Reactive Histidine Residue of Arginase. *Arch. Biochem. Biophys.* **444** (1), 15-26 (2005).
- G Dong, A Hutagalung, C Fu, P Novick, K Reinisch. The Structures of Exocyst Subunit Exo70p and the Exo84p C-terminal Domains Reveal a Common Motif. *Nat. Struct. Mol. Biol.* **12** (12), 1094 (2005).
- D Duda, H Walden, J Sfondouris, B Schulman. Structural Analysis of Escherichia Coli ThiF. *J. Mol. Biol.* **349** (4), 774-786 (2005).
- S Eathiraj, X Pan, C Ritacco, D Lambright. Structural Basis of Family-Wide Rab GTPase Recognition by Rabenosyn-5. *Nature*. **436**, 415 (2005).
- L Feng, D Gell, S Zhou, L Gu, Y Kong, J Li, M Hu, N Yan, C Lee, et al.. Molecular Mechanism of AHSP-Mediated Stabilization of Alpha-Hemoglobin. *Cell*. **119**, 629 (2005).
- L Feng, S Zhou, L Gu, D Gell, J MacKay, M Weiss, A Gow, Y Shi. Structure of Oxidized Alpha-Haemoglobin Bound to AHSP Reveals a Protective Mechanism for HAEM. *Nature*. **435**, 697 (2005).
- G Golan, D Zharkov, H Feinberg, A Fernandes, E Zaika, J Kycia, A Grollman, G Shoham, et al.. Structure of the Uncomplexed DNA Repair Enzyme Interdomain Flexibility. *Nucleic Acids Res.* **33**, 5006 (2005).
- A Gupta, T Bai, V Murphy, P Strike, R Anders, A Batchelor. Refolding, Purification, and Crystallization of Apical Membrane Antigen 1 from Plasmodium. *Protein Expr. Purif.* **41** (1), 186-198 (2005).
- L Higgins, F Yan, P Liu, H Liu, C Drennan. Structural Insight into Antibiotic Fosfomycin Biosynthesis by a Mononuclear Iron Enzyme. *Nature*. **437**, 838-844 (2005).
- c Hobartner, R Rieder, C Kreutz, B Puffer, K Lang, A Polonskaia, A Serganov, R Micura. Synthesis of RNAs with up to 100 Nucleotides Containing Site-Specific 2'-methylseleno Labels for use in X-ray Crystallography. *J. Am. Chem. Soc.* **127** (34), 12035-12045 (2005).
- M Hu, P Li, L Song, P Jeffrey, T Chernova, K Wilkinson, R Cohen, Y Shi. Structure and Mechanisms of the Proteasome-associated Deubiquitinating Enzyme USP14. *EMBO J.* **24** (21), 3747 (2005).
- Q Huai, H Wang, Y Liu, H Kim, D Toft, H Ke. Structures of the N-Terminal and Middle Domains of E. Coli Hsp90 and Conformation Changes Upon ADP Binding. *Structure*. **13**, 579-590 (2005).
- D Huang, A Paydar, M Zhuang, M Waddell, J Holton, B Schulman. Structural Basis for Recruitment of Ubc12 by an E2 Binding Domain in NEDD8's E1. *Mol. Cell*. **17** (3), 341-350 (2005).
- A Iffland, D Kohls, S Low, J Luan, Y Zhang, M Kothe, Q Cao, A Kamath, Y Ding, T Ellenberger. Structural Determinants for Inhibitor Specificity and Selectivity in PDE2A using the Wheat Germ In Vitro Translation System. *Biochemistry*. **44**, 8312-8325 (2005).
- Y Im, S Raychaudhuri, W Prinz, J Hurley. Structural Mechanism for Sterol Sensing and Transport by OSBP-Related Proteins. *Nature*. **437**, 154-158 (2005).
- S Jayaraman, S Eswaramoorthy, S Ahmed, L Smith, S Swaminathan. N-Terminal Helix Reorients in Recombinant C-Fragment of Clostridium Botulinum Type B. *Biochem. Biophys. Res. Commun.* **330** (1), 29 (2005).
- S Kamtekar, A Berman, J Wang, J Lazaro, M de Vega, L Blanco, M Salas, T Steitz. Insights into Strand Displacement and Processivity from the Crystal Structure of the Protein-primed DNA Polymerase of Bacteriophage phi29. *Mol. Cell*. **16**, 609-618 (2005).
- S Kang, B Crane. Effects of Interface Mutations on Association Modes and Electron-Transfer Rates Between Proteins. *Proc Natl Acad Sci USA*. **102** (43), 15465-15470 (2005).

- C Kielkopf, S Luecke, M Green. U2AF-Homology-Motifs: Protein Recognition in the RRM World. *Genes Dev.* **18**, 1513-1526 (2005).
- S Lahr, D Engel, S Stayrook, O Maglio, B North, S Geremia, A Lombardi, W DeGrado. Analysis and Design of Turns in alpha-Helical Hairpins. *J. Mol. Biol.* **346** (5), 1441-1454 (2005).
- S Lee, A Lee, J Chen, R MacKinnon, W Chin. Structure of the KvAP voltage-dependent K⁺ channel and its dependence on the lipid membrane. *Proc Natl Acad Sci USA*. **102** (43), 15441-15446 (2005).
- B Lepore, F Ruzicka, P Frey, D Ringe. The X-ray Crystal Structure of lysine-2,3-aminomutase from *Clostridium Subterminale*. *Proc Natl Acad Sci USA*. **102** (39), 13819-13824 (2005).
- K Li, K Zhao, B Ossareh-Nazari, G Da, C Dargemont, R Marmorstein. Structural Basis for Interaction Between the UBP3 Deubiquitinating Enzyme and Its BRE5 Cofactor. *J. Biol. Chem.* **280**, 29176 (2005).
- W Li, S Kamtekar, Y Xiong, G Sarkis, N Grindley, T Steitz. Structure of a Synaptic gamma delta Resolvase Tetramer Covalently Linked to Two Cleaved DNAs. *Science*. **309**, 1210 (2005).
- S Li, R Depetris, D Barford, J Chernoff, S Hubbard. Crystal Structure of a Complex Between Protein Tyrosine Phosphatase 1B and the Insulin Receptor Tyrosine Kinase. *Structure*. **13** (11), 1643-1651 (2005).
- H Li, S van Vranken, Y Zhao, Z Li, Y Guo, L Eisele, Y Li. Crystal Structures of T Cell Receptor (Beta) Chains Related to Rheumatoid Arthritis. *Protein Sci.* **14**, 3025 (2005).
- A Liinas, N Ahmed, M Cordaro, A Laws, J Frere, M Delmarcelle, N Silvaggi, J Kelly, M Page. Inactivation of Bacterial DD-Peptidase by Beta-Sultams. *Biochemistry*. **44**, 7738-7746 (2005).
- S Long, E Campbell, R MacKinnon. Voltage Sensor of Kv1.2: Structural Basis of Electromechanical Coupling. *Science*. **309**, 903 (2005).
- S Long, E Campbell, R MacKinnon. Crystal Structure of a Mammalian Voltage-Dependent Shaker Family K⁺ Channel. *Science*. **309**, 897 (2005).
- G Miller, M Wilson, P Majerus, J Hurley. Specificity Determinants in Inositol Polyphosphate Synthesis: Crystal Structure of Inositol 1,3,4-Trisphosphate 5/6-Kinase. *Mol. Cell*. **18** (2), 201-212 (2005).
- M Neiditch, M Federle, S Miller, B Bassler, F Hughson. Regulation of LuxPQ Receptor Activity by the Quorum-Sensing Signal Autoinducer-2. *Mol. Cell*. **18** (5), 507-518 (2005).
- K Pant, B Crane. Structure of a Loose Dimer: an Intermediate in Nitric Oxide Synthase Assembly. *J. Mol. Biol.* **352** (4), 932-940 (2005).
- E Rangarajan, Y Li, P Iannuzzi, M Cygler, A Matte. Crystal Structure of *Escherichia coli* Crotonobetianyl-CoA: Carnitine CoA-Transferase (CaiB) and Its Complexes with CoA and Carnitiny-CoA. *Biochemistry*. **44**, 5728-5738 (2005).
- S Riedl, W Li, Y Chao, R Schwarzenbacher, Y Shi. Structure of the Apoptotic Protease-Activating Factor 1 Bound to ADP. *Nature*. **434**, 926 (2005).
- T Schmeing, K Huang, S Strobel, T Steitz. An Induced-fit Mechanism to Promote Peptidyl Bond Formation and Exclude Hydrolysis of Peptidyl-tRNA. *Nature*. **438**, 520-524 (2005).
- T Schmeing, K Huang, D Kitchen, S Strobel, T Steitz. Structural Insights into the Mechanism of the Peptidyl Transferase Reaction Suggest Oxyanion Transition State Stabilization by Water and a Substrate Proton Shuttle. *Mol. Cell*. **20**, 437-448 (2005).
- A Serganov, S Keiper, L Malinina, V Tereshko, E Skripkin, C Hobartnet, A Polonskaia, Z Dauter, A Jaschke, D Patel. Structural basis for Diels-Alder ribozyme-catalyzed carbon-carbon bond formation. *Nat. Struct. Mol. Biol.* **12** (3), 218-224 (2005).
- K Shi, C Brown, Z Gu, B Kozlowski, G Dunny, D Ohlendorf, C Earhart. Structure of Peptide Sex Pheromone Receptor PrgX and PrgX/Pheromone Complexes and Regulation of Conjugation in *Enterococcus faecalis*. *Proc Natl Acad Sci USA*. **102** (51), 18596-18601 (2005).
- E Sickmier, D Brekasis, S Paranawithana, J Bonanno, M Paget, S Burley, C Kielkopf. X-ray Structure of a Rex-Family Repressor/ NADH Complex Insights into the Mechanism of Redox Sensing. *Structure*. **13**, 43-54 (2005).
- X Siebert, B Eipper, R Mains, S Prigge, N Blackburn, L Amzel. The Catalytic Copper of Peptidylglycine alpha-Hydroxylating Monooxygenase also Plays a Critical Structural Role. *Biophys. J.* **89** (5), 3312-3319 (2005).
- X Siebert. Structural Probes into the Mechanism of PAM, a Peptide-Amidating Enzyme. Ph. D. Thesis. Johns Hopkins School of Medicine, Baltimore. (2005).
- M Stahley, S Strobel. Structural Evidence for a Two-Metal-ion Mechanism of Group I Intron Splicing. *Science*. **309**, 1587 (2005).
- B Staker, M Feese, M Cushman, Y Pommier, D Zembower, L Stewart, A Burgin. Structures of Three Classes of Anticancer Agents Bound to the Human Topoisomerase I-DNA Covalent Complex. *J. Med. Chem.* **48** (7), 2336-2345 (2005).
- A Stein, G Fuchs, C Fu, S Wolin, K Reinisch. Structural Insights into RNA Quality Control: The Ro Autoantigen Binds Misfolded RNAs Via its Central Cavity. *Cell*. **121** (4), 529-539 (2005).
- A Tocilj, J Schrag, Y Li, B Schneider, L Reitzer, A Matte, M Cygler. Crystal Structure of N-succinylarginine Dihydrolase AstB, Bound to Substrate and Product, an Enzyme from the Arginine Catabolic Pathway of *Escherichia coli*. *J. Biol. Chem.* **280** (16), 15800-15808 (2005).
- N Tolia, E Enemark, B Sim, L Joshua-Tor. Structural Basis for the EBA-175 Erythrocyte Invasion Pathway of the Malaria Parasite *Plasmodium falciparum*. *Cell*. **122**, 183-193 (2005).
- D Tu, G Blaha, P Moore, T Steitz. Structures of MLSBK Antibiotics Bound to Mutated Large Ribosomal Subunits Provide a Structural Explanation for Resistance. *Cell*. **121** (2), 257-270 (2005).
- S Tuske, S Sarafianos, X Wang, B Hudson, E Sineva, J Mukhopadhyay, J Birktoft, O Leroy, S Ismail, et al.. Inhibition of Bacterial RNA Polymerase by Streptolydigin: Stabilization of a Straight-Bridge-Helix Active-Center Conformation. *Cell*. **122** (4), 541-552 (2005).
- H Wei, A Ruthenburg, S Bechis, G Verdine. Nucleotide-dependent Domain Movement in the ATPase Domain of a Human Type IIA DNA Topoisomerase. *J. Biol. Chem.* **280** (44), 37041-37047 (2005).
- N Yan, J Chai, E Lee, L Gu, Q Liu, J He, J Wu, D Kokel, H Li, et al.. Structure of the CED-4-CED-9 Complex Provides Insights into Programmed Cell Death in *Caenorhabditis elegans*. *Nature*. **437**, 831 (2005).

Beamline X26A

- C Andrade, T Preharaj, H Jamieson, D Fortin. The potential for geochemical and microbial remobilization of arsenic from sediments in Yellowknife Bay, Great Slave Lake: Progress. Geological Sciences, Queen's University, Kingston. Prepared for Indian and Northern Affairs Canada. (2005).
- T Biswas, H Aihara, M Radman-Livaja, D Filman, A Landy, T Ellenberger. A Structural Basis for Allosteric Control of DNA Recombination by lambda Integrase. *Nature*. **435**, 1059 (2005).
- L Briebe, R Kokoska, K Bebenek, T Kunkel, T Ellenberger. A Lysine Residue in the Fingers Subdomain of T7 DNA Polymerase Modulates the Miscoding Potential of 8-Oxo-7,8-

- Dihydroguanosine. *Structure*. **13** (11), 1653-1659 (2005).
- M Cheng, M Levy, D Schulze, D Huber. Mn Transition States During Infection and Early Pathogenesis in Rice Blast Relative to Resistance and Susceptibility. *J. Phytopathology*. **95**, S19 (2005).
- J Flinn, D Hunter, D Linkous, A Lanzirrotti, L Smith, J Brightwell, B Jones. Enhanced Zinc Consumption Causes Memory Deficits and Increased Brain Levels of Zinc. *Physiol. Behav.* **83**, 793-803 (2005).
- V Fthenakis, M Fuhrmann, J Heiser, A Lanzirrotti, J Fitts, W Wang. Emissions and Encapsulation of Cadmium in CdTe PV Modules During Fires. *Prog. Photovolt.* **13** (8), 713-723 (2005).
- M Fuhrmann, A Lanzirrotti. ²⁴¹Am, ¹³⁷Cs, Sr and Pb Uptake by Tobacco as Influenced by Application of Fe Chelators to Soil. *J. Environ. Radioact.* **82** (1), 33-50 (2005).
- M Ginder-Vogel, T Borch, M Mayes, P Jardine, S Fendorf. Chromate Reduction and Retention Processes within Arid Subsurface Environments. *Environ. Sci. Tech.* **39** (20), 7833-7839 (2005).
- B Jackson, P Williams, A Lanzirrotti, P Bertsch. Evidence for Biogenic Pyromorphite Formation by the Nematode *Caenorhabditis Elegans*. *Environ. Sci. Tech.* **39** (15), 5620-5625 (2005).
- K Jones, H Feng, A Lanzirrotti, D Mahajan. Mapping Metal Catalysts using Synchrotron Computed Microtomography (CMT) and Micro-X-ray Fluorescence (μ XRF). *Top. Catal.* **32** (3-4), 263-272 (2005).
- K Jones, H Feng, A Lanzirrotti, D Mahajan. Synchrotron X-ray Microprobe and Computed Microtomography for Characterization of Nanocatalysts. *Nucl. Instrum. Meth. B*. **241**, 331-334 (2005).
- G Miller, M Wilson, P Majerus, J Hurley. Specificity Determinants in Inositol Polyphosphate Synthesis: Crystal Structure of Inositol 1,3,4-Trisphosphate 5/6-Kinase. *Mol. Cell*. **18** (2), 201-212 (2005).
- L Miller, M Ruppel, C Ott, R Smith, A Lanzirrotti. Development and Applications of an Epifluorescence Module for Synchrotron -ray Fluorescence Imaging. *Rev. Sci. Instrum.* **76**, 066107 (2005).
- C Negra, D Ross, A Lanzirrotti. Oxidizing Behavior of Soil Manganese: Interactions among Abundance, Oxidation State, and pH. *Soil Sci. Soc. Am. J.* **69** (1), 87-95 (2005).
- C Negra, D Ross, A Lanzirrotti. Soil Manganese Oxides and Trace Metals: Competitive Sorption and Microfocused Synchrotron X-ray Fluorescence Mapping. *Soil Sci. Soc. Am. J.* **69** (2), 353-361 (2005).
- T Punshon, B Jackson, A Lanzirrotti, W Hopkins, P Bertsch, J Burger. Application of Synchrotron X-ray Microbeam Spectroscopy to the Determination of Metal Distribution and Speciation in Biological Tissues. *Spectrosc. Lett.* **38**, 343-363 (2005).
- T Punshon, A Lanzirrotti, S Harper, P Bertsch, J Burger. Distribution and Speciation of Metals in Annual Rings of Black Willow. *J. Environ. Qual.* **34** (4), 1165-1173 (2005).
- M Ruppel. Development and Applications of an Epifluorescence Module for Synchrotron X-ray Fluorescence Imaging. Masters Thesis. Stony Brook University, Stony Brook. (2005).
- T Schuler, D Ederer, S Itza-Ortiz, G Woods, T Callcott, J Woicik. Character of the Insulating State in NiO: a Mixture of Charge-Transfer and Mott-Hubbard Character. *Phys. Rev. B*. **71**, 115113 (2005).
- B Staker, M Feese, M Cushman, Y Pommier, D Zembower, L Stewart, A Burgin. Structures of Three Classes of Anticancer Agents Bound to the Human Topoisomerase I-DNA Covalent Complex. *J. Med. Chem.* **48** (7), 2336-2345 (2005).
- T Telivala, L Miller. Effect of Metal Ions on the Secondary Structure of Amyloid beta (Ab) in Alzheimer's disease. Masters Thesis. SUNY at Stony Brook, Stony Brook. (2005).
- I Thompson, D Huber, C Guest, D Schulze. Fungal Manganese Oxidation in a Reduced Soil. *Environ. Microbiol.* **7** (9), 1480-1487 (2005).
- T Tokunaga, J Wan, J Pena, E Brodie, M Firestone, T Hazen, S Sutton, A Lanzirrotti, M Newville. Uranium Reduction in Sediments under Diffusion-Limited Transport of Organic Carbon. *Environ. Sci. Tech.* **39** (18), 7077-7083 (2005).
- D Vantelon, A Lanzirrotti, A Scheinost, R Kretzschmar. Spatial Distribution and Speciation of Lead around Corroding Bullets in a Shooting Range Soil Studied by Micro-X-ray Fluorescence and Absorption Spectroscopy. *Environ. Sci. Tech.* **39** (13), 4808-4815 (2005).
- S Walker, H Jamieson, A Lanzirrotti, C Andrade, G Hall. The Speciation of Arsenic in Iron Oxides in Mine Wastes from the Giant Gold Mine, N.W.T.: Application of Synchrotron Micro-XRD and Micro-XANES at the Grain Scale. *Can. Mineral.* **43** (4), 1205-1224 (2005).
- Q Wang, A Kretlow, M Beekes, D Naumann, L Miller. In Situ Characterization of Prion Protein Structure and Metal Accumulation in Scrapie-Infected Cells by Synchrotron Infrared and X-ray Imaging. *Vib. Spectrosc.* **38**, 61-69 (2005).

Beamline X26C

- J Amor, J Swails, X Zhu, C Roy, H Nagai, A Ingmundson, X Cheng, R Kahn. The Structure of RalF, an ADP-Ribosylation Factor Guanine Nucleotide Exchange Factor from *Legionella pneumophila*, Reveals the Presence of a Cap over the Active Site. *J. Biol. Chem.* **280** (2), 1392-1400 (2005).
- P Cherepanov, A Ambrosio, S Rahman, T Ellenberger, A Engelman. Structural Basis for the Recognition Between HIV-1 Integrase and Transcriptional Coactivator p75. *Proc Natl Acad Sci USA*. **102** (48), 17308-17313 (2005).
- P Davison, H Schubert, J Reid, C Iorg, A Heroux, C Hill, C Hunter. Structural and Biochemical Characterization of Gun4 Suggests a Mechanism for Its Role in Chlorophyll Biosynthesis. *Biochemistry*. **44** (21), 7603-7612 (2005).
- B Ford, K Skowronek, S Boykevisch, D Bar-Sagi, N Nassar. Structure of the G60A mutant of Ras: Implications for the Dominant Negative Effect.. *J. Biol. Chem.* **280** (27), 25697-25705 (2005).
- B Gao, A Bertrand, W Boles, H Ellis, T Mallett. Crystallization and Preliminary X-ray Crystallographic Studies of the Alkanesulfonate FMN Reductase from *Escherichia coli*. *Acta Cryst. F*. **61**, 837-840 (2005).
- J Horton, K Sawada, M Nishibori, X Cheng. Structural Basis for Inhibition of Histamine N-Methyltransferase by Diverse Drugs. *J. Mol. Biol.* **353** (2), 334-344 (2005).
- H Hsu, B Stillman, R Xu. Structural Basis for Origin Recognition Complex 1 Protein-Silence Information Regulator 1 Protein Interaction in Epigenetic Silencing. *Proc Natl Acad Sci USA*. **102**, 8519-8524 (2005).
- E Karakas, H Wilson, T Graf, S Xiang, S Jaramillo-Busquets, K Rajagopalan, C Kisker. Structural Insights into Sulfite Oxidase Deficiency. *J. Biol. Chem.* **280** (39), 33506-15 (2005).
- I Loftin, S Franke, S Roberts, A Weichsel, A Heroux, W Montfort, C Rensing, M McEvoy. A Novel Copper-Binding Fold for the Periplasmic Copper Resistance Protein CusF. *Biochemistry*. **44**, 10533-10540 (2005).
- J Ma, Y Yuan, G Meister, Y Pei, T Tuschi, D Patel. Structural Basis for 5' -end-specific Recognition of Guide RNA by the A. fulgidu Piwi Protein. *Nature*. **434**, 666 (2005).
- P Paaventhann, C Kong, J Joseph, M Chung, P Kolatkar. Structure

- of Rhodocetin Reveals Noncovalently Bound Heterodimer Interface. *Protein Sci.* **14**, 169 (2005).
- F Rivas, N Tolia, J Song, J Aragon, J Liu, G Hannon, L Joshua-Tor. Purified Argonaute2 and an siRNA form Recombinant Human RISC. *Nat. Struct. Mol. Biol.* **12** (4), 340-349 (2005).
- D Shi, X Yu, L Roth, M Hiroki, Y Hathout, N Allewell, M Tuchman. Expression, Purification, Crystallization and Preliminary X-ray Crystallographic Studies of a Novel Acetylcitrulline deacetylase from *Xanthomonas Campestris*. *Acta Cryst. F* **61**, 676-679 (2005).
- X Siebert, B Eipper, R Mains, S Prigge, N Blackburn, L Amzel. The Catalytic Copper of Peptidylglycine α -Hydroxylating Monooxygenase also Plays a Critical Structural Role. *Biophys. J.* **89** (5), 3312-3319 (2005).
- X Siebert. Structural Probes into the Mechanism of PAM, a Peptide-Amidating Enzyme. Ph. D. Thesis. Johns Hopkins School of Medicine, Baltimore. (2005).
- A Soares, Y Vehter. Experimental methods for measuring accurate high-amplitude phases and their importance in isomorphous replacement experiments. *Acta Cryst. D* **D61**, 1521-1527 (2005).
- J Suryadi, E Tran, E Maxwell, B Brown, II. The Crystal Structure of the Methanocaldococcus jannaschii Multifunctional L7Ae RNA-Binding Protein Reveals an Induced-Fit Interaction with the Box C/D RNAs. *Biochemistry* **44**, 9657-9672 (2005).
- Y Tie, P Boross, Y Wang, L Gaddis, f Liu, X Chen, J Tozser, R Harrison, I Weber. Molecular Basis for Substrate Recognition and Drug Resistance from 1.1 to 1.6 Angstrom Resolution Crystal Structures of HIV-1 Protease Mutants with Substrate Analogs. *FEBS J.* **272** (20), 5265 (2005).
- N Tolia, E Enemark, B Sim, L Joshua-Tor. Structural Basis for the EBA-175 Erythrocyte Invasion Pathway of the Malaria Parasite Plasmodium Falciparum. *Cell* **122**, 183-193 (2005).
- J Truglio, B Rhau, D Croteau, L Wang, M Skorvaga, E Karakas, M DellVecchia, H Wang, B Van Houten, C Kisker. Structural Insights Into the First Incision Reaction During Nucleotide Excision Repair. *EMBO J.* **24**, 885-894 (2005).
- J Wang, K Stieglitz, E Kantrowitz. Metal Specificity is Correlated with Two Crucial Active Site Residues in Escherichia coli Alkaline Phosphatase. *Biochemistry* **44**, 8378-8386 (2005).
- Beamline X27A**
- J Ablett. High-Brightness Hard X-ray Scanning Nano-Probes at NSLS II. *Nucl. Instrum. Meth. B* **241**, 238-241 (2005).
- K Jones, H Feng, A Lanzirotti, D Mahajan. Mapping Metal Catalysts using Synchrotron Computed Microtomography (CMT) and Micro-X-ray Fluorescence (μ XRF). *Top. Catal.* **32** (3-4), 263-272 (2005).
- Beamline X27B**
- E Kossel. NMR-Untersuchungen zum mikroskopischen Fluss in Perkulationsmodellobjekten. Ph.D. Thesis. Universitaet Ulm, Ulm. (2005).
- Beamline X27C**
- C Avila-Orta, C Burger, R Somani, L Yang, G Marom, F Medellin-Rodriguez, B Hsiao. Shear Induced Crystallization in Isotactic Polypropylene within the Oriented Scaffold of Non-crystalline Ultra High Molecular Weight Polyethylene. *Polymer* **46**, 8859-8871 (2005).
- J Celli, B Gregor, B Turner, N Afdhal, R Bansil, S Erramilli. Viscoelastic Properties and Dynamics of Porcine Gastric Mucin. *Biomacromolecules* **6**, 1329 (2005).
- X Chen, C Burger, X Wang, W He, K Yoon, R Somani, D Fang, I Sics, L Rong, et al.. In-Situ X-Ray Scattering Studies of Fluorinated Multi-Wall Carbon Nanotube (FMWNT)/Fluorinated Ethylene Propylene (FEP) Composite Fiber during Stretching. *ACS, PMSE Preprints*, Vol 93, p. 751-752, sponsored by ACS. (2005).
- J Chen, C Burger, C Krishnan, B Chu. Morphogenesis of Highly Ordered Mixed-Valent Mesoporous Molybdenum Oxides. *J. Am. Chem. Soc.* **127**, 14140-14141 (2005).
- X Chen, K Yoon, C Burger, I Sics, D Fang, B Hsiao, B Chu. In-Situ X-ray Scattering Studies of a Unique Toughening Mechanism in Surface-Modified Carbon Nanofiber/UHMWPE Nanocomposite Films. *Macromolecules* **38**, 3883-3893 (2005).
- L Cui, J Miao, L Zhu, I Sics, B Hsiao. Confined Discotic Liquid Crystalline Self-assembly in a Novel Coil-coil-disk Triblock Oligomer. *ACS, PMSE Preprints*, Vol 93, p. 286-287, sponsored by ACS. (2005).
- L Cui, S Dahmane, X Tong, L Zhu, Y Zhao. Using Self-Assembly to Prepare Multifunctional Diblock Copolymers Containing Azopyridine Moiety. *Macromolecules* **38**, 2076-2084 (2005).
- L Cui, J Miao, L Zhu, I Sics, B Hsiao. Confined Discotic Liquid Crystalline Self-Assembly in a Novel Coil-Coil-Disk Triblock Oligomer. *Macromolecules* **38**, 3386-3394 (2005).
- D Dikovskiy, G Marom, C Avila-orta, R Somani, B Hsiao. Shear-Induced Crystallization in Isotactic Polypropylene Containing Ultra-High Molecular Weight Polyethylene Oriented Precursor Domains. *Polymer* **45**, 3096-3104 (2005).
- D Dikovskiy, G Marom, C Avila-Orta, R Somani, B Hsiao. Shear-Induced Crystallization in Isotactic Polypropylene Containing Ultra-High Molecular Weight Polyethylene Oriented Precursor Domains. *Polymer* **46** (9), 3096-3104 (2005).
- L Drummy, D Phillips, M Stone, B Farmer, R Naik. Thermally Induced Alpha-Helix to Beta-Sheet Transition in Regenerated Silk Fibers and Films. *Biomacromolecules* **6** (6), 3328-3333 (2005).
- Z Espinosa, F Medellin-Rodriguez, N Stribeck, A Almendarez-Camarillo, B Hsiao, S Vega-diaz. Complex Isothermal Crystallization and Melting Behavior of Nylon 6 Nanoclay-Hybrids. *Macromolecules* **38** (10), 4246-4253 (2005).
- H Fong, S Dickens, G Flaim. Evaluation of Dental Restorative Composites Containing Polyhedral Oligomeric Silsesquioxane Methacrylate. *Dent. Mater.* **21** (6), 520-529 (2005).
- K Fukukawa, L Zhu, P Gopalan, M Ueda, S Yang. Synthesis and Characterization of Silicon-containing Block Copolymers from Nitroxide-mediated Living Free Radical Polymerization. *Macromolecules* **28** (2), 263-270 (2005).
- M Gelfer, C Burger, B Chu, B Hsiao, A Drozdov, M Si, M Rafailovich, B Sauer, J Gilman. Relationships Between Structure and Rheology in Model Nanocomposites of Ethylene-Vinyl-Based Copolymers and Organoclays. *Macromolecules* **38**, 3765-3775 (2005).
- M Gelfer, C Burger, G Panek, G Jeschke, A Fadeev, M Si, M Rafailovich, P Nawani, J Gilman, et al.. Investigation of Thermally Induced Phase Transitions and Degradation of Organoclays Based on Synthetic Soma-sif Clays using in-situ X-ray Scattering. *ACS, PMSE Preprints*, Vol 92, p. 441-442, sponsored by ACS. (2005).
- G Georgiev. Effects of Nematic Polymer Liquid Crystal on Crystallization and Structure of PET/Vectra Blends. *J. Mater. Sci.* **40**, 1140 (2005).
- G Georgiev, P Cebe, M Capel. Effects of Nematic Polymer Liquid Crystal on Crystallization and Structure of Pet/Vectra Blends. *J. Mater. Sci.* **40** (5), 1141-1152 (2005).
- H Heinz, H Koerner, K Anderson, R Vaia, B Farmer. Force Field

- for Mica-Type Silicates and Dynamics of Octadecylammonium Chains Grafted to Montmorillonite. *Chem. Mater.* **17**, 5658 (2005).
- R Ho, T Chung, J Tsai, J Kuo, B Hsiao, I Sics. Crystallization of Poly(styrene)-b-syndiotactic Poly(propylene) Block Copolymers from Confinement to Breakout. *Macromol. Rapid Commun.* **26**, 107-111 (2005).
- R Ho, T Lin, M Jhong, T Chung, B Ko, Y Chen. Phase Transformation in Self-Assembly of the Gold(Poly(4-vinylpyridine)-b-poly(ϵ -caprolactone) Hybrid System. *Macromolecules*. **38** (21), 8607 (2005).
- R Ho, Y Chiang, C Lin, B Huang. Crystallization and Melting Behavior of Poly(ϵ -caprolactone) Under Physical Confinement. *Macromolecules*. **38**, 4769-4779 (2005).
- B Hsiao, M Gelfer. Synchrotron X-ray Techniques for the Study of Clay-Based Polymer Nanocomposites. *American Chemical Society Rubber Division Preprint*, Vol , p. 66, sponsored by American Chemical Society Rubber Division . (2005).
- B Hsiao, L Yang, R Somani, C Avila-Orta, L Zhu. Unexpected Shish-Kebab Structure in a Sheared Polyethylene Melt. *Phys. Rev. Lett.* **94**, 117802 (2005).
- P Huang, S Chen, R Van Horn, Y Guo, R Quirk, B Lotz, E Thomas, B Hsiao, C Avila-Orta, I Sics. PEO Crystal Orientation Changes within an Inverted Cylindrical Morphology Constructed by a PEO-b-PS Block Copolymer. *ACS, PMSE Preprints*, Vol 93, p. 284-285, sponsored by ACS. (2005).
- A Kelarakis, K Yoon, I Sics, R Somani, B Hsiao, B Chu. Uniaxial Deformation of an Elastomer Nanocomposite Containing Modified Carbon Nanofibers by in situ Synchrotron X-ray Diffraction. *Polymer*. **46** (14), 5103-5117 (2005).
- J Keum, C Burger, F Zuo, I Sics, B Hsiao, T Sun, A Lustiger. Synchrotron X-ray Diffraction/Scattering Studies on the Nucleation and Growth Habits of Flow-induced shish-kebab structure in Linear Polyethylene (HDPE) Melts. *ACS, PMSE Preprints*, Vol 93, p. 759-760, sponsored by ACS. (2005).
- J Keum, C Burger, B Hsiao, R Somani, L Yang, R Kolb, H Chen, C Lue. Synchrotron X-ray Scattering Studies of the Nature of Shear-Induced Shish-kebab Structure in Polyethylene Melt. *Prog. Coll. Pol. Sci. S.* **130**, 114-126 (2005).
- J Keum, R Somani, F Zuo, C Burger, I Sics, B Hsiao, H Chen, R Kolb, C Lue. Probing Flow-Induced Precursor Structures in Blown Polyethylene Films by Synchrotron X-rays During Constrained Melting. *Macromolecules*. **38**, 5128-5136 (2005).
- H Koerner, W Liu, M Alexander, P Mirau, H Dowty, R Vaia. Deformation-Morphology Correlations in Electrically Conductive Carbon Nanotube-Thermoplastic Polyurethane Nanocomposites. *Polymer*. **46** (12), 4405-4420 (2005).
- H Koerner, E Hampton, D Dean, Z Turgut, L Drummy, P Mirau, R Vaia. Generating Triaxial Reinforced Epoxy/Montmorillonite Nanocomposites with Uniaxial Magnetic Fields. *Chem. Mater.* **17**, 1990-1996 (2005).
- H Koerner, G Price, N Pearce, M Alexander, R Vaia. Remotely Actuated Polymer Nanocomposites-Stress-Recovery of Carbon-Nanotube-Filled Thermoplastic Elastomers. *Nat. Mater.* **3**, 115-120 (2005).
- S Kohjiya, M Tosaka, S Poompradub, A Kato, J Shimanuki, Y Ikeda, S Toki, B Hsiao. Nano-structural Elucidation in Carbon Black Loaded NR Vulcanizate by 3D-TEM and in situ WAXD Measurements. *American Chemical Society Rubber Division Preprint*, Vol , p. 33, sponsored by American Chemical Society Rubber Division . (2005).
- B Larin, G Marom, C Avila-Orta, R Somani, B Hsiao. Orientated Crystallization in Discontinuous Aramid Fiber/isotactic Polypropylene Composites under Shear Flow Conditions. *J. Appl. Polym. Sci.* **98**, 1113 (2005).
- H Lee, L Zhu, R Weiss. Formation of Nanoparticles during Melt mixing a Thermotropic Liquid Crystalline Polyester and Sulfonated Polystyrene Ionomers: Morphology and Origin of Formation. *Polymer*. **46**, 10841 (2005).
- Y Loo, K Eakabayashi, Y Huang, R Register, B Hsiao. Thin Crystal Melting Produces the Low-Temperature Endotherm in Ethylene/Methacrylic Acid Ionomers. *Polymer*. **46** (14), 5118-5124 (2005).
- J Miao, G Xu, L Zhu, L Tian, K Uhrich, C Avila-Orta, B Hsiao, M Utz. Chain-folding and Overall Molecular Conformation in a Novel Amphiphilic Starlike Macromolecule. *Macromolecules*. **38**, 7074-7082 (2005).
- C Mitchell, R Krishnamoorti. Non-isothermal Crystallization of in situ Polymerized Poly(ϵ -caprolactone) Functionalized-SWNT Nanocomposites. *Polymer*. **46** (20), 8796-8804 (2005).
- P Nawani, M Gelfer, B Hsiao. Investigations of Morphology and Thermal Behavior of Transition Metal Ions Modified Clays using in-situ X-ray Scattering. *ACS, PMSE Preprints*, Vol 93, p. 757-758, sponsored by ACS. (2005).
- K Page, K Cable, R Moore. Molecular Origins of the Thermal Transitions and Dynamic Mechanical Relaxations in Perfluorosulfonate Ionomers. *Macromolecules*. **38**, 6472-6484 (2005).
- B Pate, E Thomas, R Pytel. Processing the Right Actuator: The Relationship Between Nanostructure and Materials Properties of Higher-Order Pyrroles. *229th ACS National Meeting*, Vol , p. ORGN-238, sponsored by American Chemical Society. (2005).
- B Pate, T Baker, K Lai, E Thomas. Synthesis and Dispersion of tin(IV) Sulfide Nano- and Microparticulate Fillers. *230th ACS National Meeting*, Vol , p. INOR-399, sponsored by American Chemical Society. (2005).
- H Shin, W Lindquist, D Sahagian, S Song. Analysis of the Vesicular Structure of Basalts. *Comput. Geosci.* **31** (4), 473-487 (2005).
- I Sics, L Rong, B Hsiao, B Chu. Advanced Polymers Beamline (X27C) at National Synchrotron Light Source, BNL. *ACS, PMSE Preprints*, Vol 93, p. 120, sponsored by ACS. (2005).
- R Somani, L Yang, L Zhu, B Hsiao. Flow-Induced Shish Kebab Precursor Structures in Entangled Polymer Melts. *Polymer*. **46**, 8587-8623 (2005).
- L Sun, E Ertel, L Zhu, B Hsiao, C Avila-Orta, I Sics. Reversible De-Intercalation and Intercalation Induced by Polymer Crystallization and Melting in a Poly(ethylene oxide)/Organoclay Nanocomposite. *Langmuir*. **21**, 5672-5676 (2005).
- K Tenneti, X Chen, C Li, X Wan, Q Zhou, I Sics, B Hsiao. Asymmetric Liquid Crystalline Rod Coil Block Copolymer System. *American Chemical Society*, Vol , p. TECH-100, sponsored by American Chemical Society. (2005).
- K Tenneti, X Chen, C Li, X Wan, Q Zhou, I Sics, B Hsiao. Asymmetric Liquid Crystalline Rod-Coil Block Copolymer System. *ACS, PMSE Preprints*, Vol 93, p. 364-365, sponsored by ACS. (2005).
- K Tenneti, C Li, Y Tu, X Wan, Q Zhou, C Avila-Orta, B Hsiao. On the Influence of Temperature and Volume Fraction on Liquid Crystalline Block Copolymer Nanoscale Architectures. *APS National Meeting*, Vol , p. LACC 505, sponsored by APS. (2005).
- K Tenneti, X Chen, C Li, Y Tu, X Wan, Q Zhou, I Sics, B Hsiao. Perforated Layer Structures in Liquid Crystalline Rod-coil Block Copolymers. *J. Am. Chem. Soc.* **127** (44), 15481-15490 (2005).
- S Toki, B Hsiao, S Kohjiya, M Tosaka, A Tsou, S Datta. Synchrotron X-Ray Studies of Vulcanized Rubbers and Thermoplastic Elastomers. *American Chemical Society Rubber Division Preprint*, Vol , p. 32, sponsored by American Chemical Society Rubber Division . (2005).

- S Toki, I Sics, B Hsiao, M Tosaka, S Poompradub, Y Ikeda, S Kohjiya. Probing the Nature of Stain-Induced Crystallization in Polyisoprene Rubber by Combined Thermomechanical and In Situ X-ray Diffraction Techniques. *Macromolecules*. **38**, 7064-7073 (2005).
- R Vaia, H Koerner, B Hsiao, I Sics. Morphology -- Deformation Correlations in Nanocomposite Elastomers. *American Chemical Society Rubber Division Preprint*, Vol , p. 63, sponsored by American Chemical Society Rubber Division . (2005).
- Z Wang, H Wang, K Shimizu, J Dong, B Hsiao, C Han. Structural and Morphological Development in Poly(ethylene-co-hexene) and Poly(ethylene-co-butylene) Blends Due to the Competition Between Liquid-Liquid Phase Separation and Crystallization. *Polymer*. **46** (8), 2675-2684 (2005).
- J Xu, B Guo, J Zhou, L Li, J Wu, M Kowalczyk. Observation of Banded Spherulites in Pure poly(L-lactide) and its Miscible Blends with Amorphous Polymers. *Polymer*. **46**, 9176 (2005).
- H Xu. Transitions from Solid to Liquid in Isotactic Polystyrene Studied by Thermal Analysis and X-ray Scattering. *Polymer*. **46**, 8734 (2005).
- J Zhang, J Wu. Crystallinity and orientation development in poly(L-lactic acid) fibers during annealing and drawing. *Annual Technical Conference - Society of Plastics Engineers* , Vol , p. 1747, sponsored by Annual Technical Conference - Society of Plastics Engineers . (2005).
- H Zhou, C Burger, J Chen, B Hsiao, B Chu, L Graham, M Glimcher. Interpretation of 2D Small-Angle X-Ray Diffraction Patterns from Mineralized Collagen Fibrils in Fish Bone. *ACS, PMSE Preprints*, Vol 93, p. 755-756, sponsored by ACS. (2005).
- L Zhu, L Sun, J Miao, L Cui, Q Ge, R Quirk, C Xue, S Cheng, B Hsiao, C Avila-Orta. Epitaxial Phase Transformation between Cylindrical and Double Gyroid Mesophases. *Materials Research Society Meeting*, Vol 856E, p. BB2.3.1-BB2.3.6, sponsored by MRS. (2005).
- F Zou, H Chen, J Li, R Wevers, G Meyers, J Keum, X Chen, B Hsiao. In-situ Synchrotron SAXS/WAXD Studies on Stretching of Isotactic Polypropylene. *ACS, PMSE Preprints* , Vol 93, p. 761-762, sponsored by ACS. (2005).

Beamline X28C

- T Adilakshmi, P Ramaswamy, S Woodson. Protein-Independent Folding Pathway of the 16 S rRNA 5' Domain. *J. Mol. Biol.* **351** (3), 508-519 (2005).
- M Brenowitz, D Erie, M Chance. Catching RNA Polymerase in the act of Binding: Intermediates in Transcription Illuminated by Synchrotron Footprinting. *Proc Natl Acad Sci USA*. **102**, 4659-4660 (2005).
- J Guan, K Takamoto, S Almo, E Reisler, M Chance. Structure and Dynamics of the Actin Filament. *Biochemistry*. **44**, 3166-3175 (2005).
- S Gupta, W Mangel, M Sullivan, K Takamoto, M Chance. Synchrotron Footprinting Provides Insight into Adenovirus Protease-DNA Interactions. *Synch. Rad. News*. **18**, 25-33 (2005).
- P Rangan. Folding of the Azoarcus Intron. Ph.D. Thesis. John Hopkins University, Baltimore. (2005).
- K Takamoto, M Chance. A New Approach for Nucleic Acid Footprinting Data Analysis. *BioTech. J.* **5**, 194-197 (2005).
- S Woodson. Metal Ions and RNA Folding: A Highly Charged Topic with a Dynamic Future. *Curr Opin Chem Biol*. **9**, 104-109 (2005).
- G Xu, J Kiselar, Q He, M Chance. Secondary Reactions and Strategies to Improve Quantitative Protein Footprinting. *Anal. Chem.* **77**, 3029-3037 (2005).

- G Xu, M Chance. Radiolytic Modification of Sulfur Containing Acidic Amino Residues in Model Peptides: Fundamental Studies for Protein Footprinting. *Anal. Chem.* **77**, 2437-2449 (2005).

Beamline X29A

- R Agarwal, T Binz, S Swaminathan. Structural Analysis of Botulinum Neurotoxin Serotype F Light Chain: Implications on Substrate Binding and Inhibitor Design. *Biochemistry*. **44**, 11758-11765 (2005).
- E Bitto, C Bingman, H Robinson, S Allard, G Wesenberg, G Phillips, Jr.. The Crystal Structure at 2.5 Angstrom Resolution of Human Basophilic Leukemia-Expressed Protein BLES03. *Acta Cryst. F*. **61**, 812 (2005).
- J Brown, Z Zhou, L Reshetnikova, H Robinson, R Yammani, L Tobacman, C Cohen. Structure of the Mid-Region Tropomyosin: Bending and Binding Sites for Actin. *Proc Natl Acad Sci USA*. **102** (52), 18878-18883 (2005).
- L Deng, C Velikovskiy, C Swaminathan , S Cho, R Mariuzza. Structural Basis for Recognition of the T Cell Adaptor Protein SLP-76 by the SH3 Domain of Phospholipase CGAMMA1. *J. Mol. Biol.* **352**, 1 (2005).
- M DiMattia, L Govindasamy, H Levy, B Whitaker-Gurda, E Kohlbrenner, J Chiorini, R McKenna, N Muzyczka, S Zolotukhin, M Agbandje-McKenna. Production, Purification, Crystallization and Preliminary X-ray Structural Studies of Adeno-Associated Virus Serotype 5. *Acta Cryst. F*. **F61**, 917-921 (2005).
- G Dong, A Hutagalung, C Fu, P Novick, K Reinisch. The Structures of Exocyst Subunit Exo70p and the Exo84p C-terminal Domains Reveal a Common Motif. *Nat. Struct. Mol. Biol.* **12** (12), 1094 (2005).
- A Forster, E Masters, F Whitby, H Robinson, C Hill. The 1.9 Angstrom Structure of a Proteasome-11S Activator Complex and Implications for the Proteasome-Pan/PA700 Interactions. *Mol. Cell. Bio.* **18**, 589 (2005).
- J Gorman, L Shapiro. Crystal Structures of the Tryptophan Repressor binding Protein WrbA and complexes with Flavin Mononucleotide. *Protein Sci.* **14**, 3004-3012 (2005).
- M Hahn, M Nicholson, J Pyrdol, K Wucherpfennig. Unconventional Topology of Self Peptide-Major Histocompatibility Complex Binding by a Human Autoimmune T Cell Receptor. *Nat. Immunol.* **6**, 490-496 (2005).
- Y Im, S Raychaudhuri, W Prinz, J Hurley. Structural Mechanism for Sterol Sensing and Transport by OSBP-Related Proteins. *Nature*. **437**, 154-158 (2005).
- S Long, E Campbell, R MacKinnon. Crystal Structure of a Mammalian Voltage-Dependent Shaker Family K⁺ Channel. *Science*. **309**, 897 (2005).
- S Long, E Campbell, R MacKinnon. Voltage Sensor of Kv1.2: Structural Basis of Electromechanical Coupling. *Science*. **309**, 903 (2005).
- I Mirza, I Nazi, M Korczynska, G Wright, A Berghuis. Crystal Structure of Homoserine Transacetylase from Haemophilus Influenzae Reveals a New Family of alpha/beta-Hydrolases. *Biochemistry*. **44**, 15768-15773 (2005).
- M Nicholson, M Hahn, K Wucherpfennig. Unusual features of Self-Peptide/MHC Binding by Autoimmune T Cell Receptors. *Immunity*. **23** (4), 351-360 (2005).
- J Wang, K Stieglitz, J Cardia, E Kantrowitz. Structural Basis for Ordered Substrate Binding and Cooperativity in Aspartate Transcarbamoylase. *Proc Natl Acad Sci USA*. **102**, 8881-8886 (2005).
- H Wang, Y Liu, Y Chen, H Robinson, H Ke. Multiple Elements Jointly Determine Inhibitor Selectivity of Cyclic Nucleotide Phosphodiesterases 4 and 7. *J. Biol. Chem.* **280**, 30949 (2005).

C Zhan, E Fedorov, W Shi, U Ramagopal, R Thirumuruhan, B Manjasetty, S Almo, A Fiser, M Chance, A Fedorov. The ybeY Protein from Escherichia coli is a Metalloprotein. *Acta Cryst. F.* **61** (11), 959-963 (2005).