



Brookhaven
National Laboratory

Laboratory for BioMolecular Structure

LBMS

NSLS-II

Liguo Wang

The 4th LBMS annual cryo-EM course

June 11-14, 2024

Laboratory *for* BioMolecular Structure

LBMS is a center for life science imaging that offers access to state-of-the-art cryo-electron microscopes and laboratory equipment for studies on the building blocks of all living organisms and their behavior.

Mission: to support and enhance BER mission research through the **development, operation and continued improvement** of a state-of-the-art electron microscopy facility optimized for solving BER-related challenges.

Focus: **complex interactions** specifying the **function of entire biological systems**
— from **molecules** to **organelles**, **cells** and **multicellular organisms**

- Established by NY Empire State Development and BNL
- Operations are supported by DOE-BER



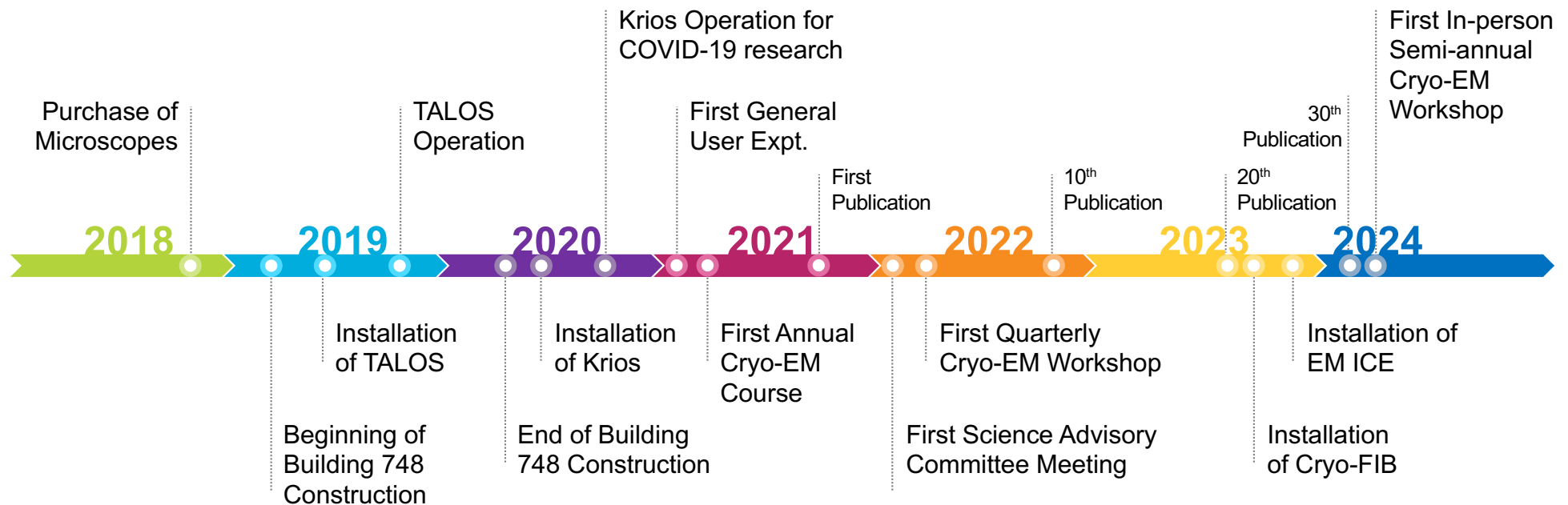
U.S. DEPARTMENT OF
ENERGY

Office of
Science



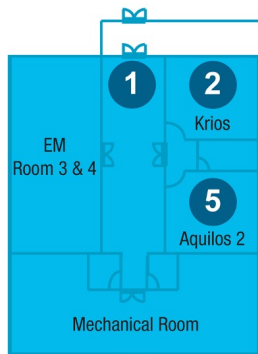
Empire State
Development

Laboratory *for* BioMolecular Structure

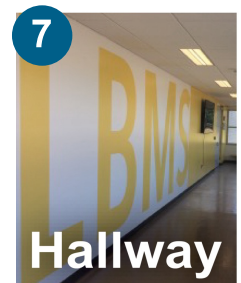
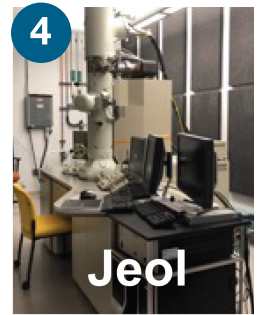
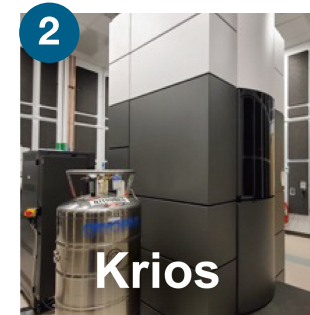
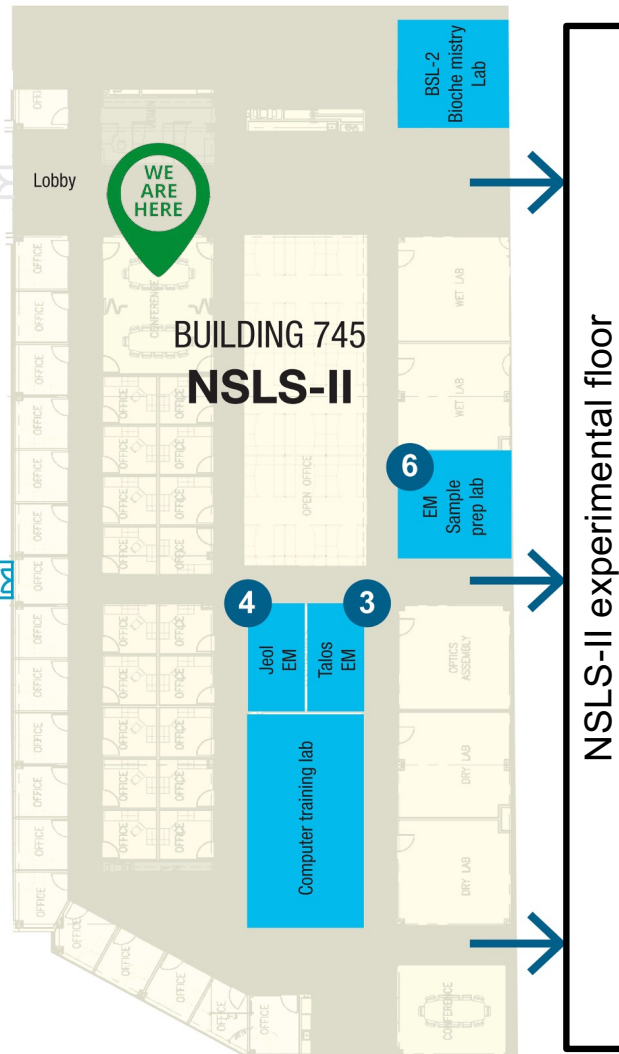


LBMS facility

Labs highlighted in blue are either owned by LBMS or accessible to LBMS.



BUILDING 748
LBMS



LBMS leadership

Science Advisory Committee

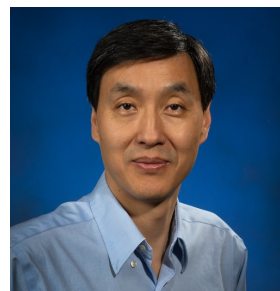
Name	Affiliation
Huilin Li (Chair)	Van Andel Institute
Daniela Nicastro	UT Southwestern Medical Center
Alexis Rohou	Genentech Inc.
John Shanklin	Brookhaven National Laboratory
Fred Sigworth	Yale University
Sharon Wolf	Weizmann Institute of Science, Israel
Elizabeth Wright	U. of Wisconsin-Madison
Chen Xu	U. of Massachusetts Medical School



LBMS team



Sean McSweeney
Director of BEPSD



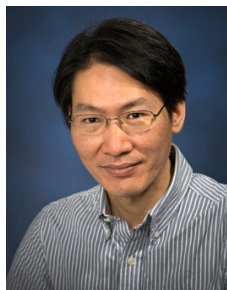
Ligu Wang
Scientific Operations
Director of LBMS



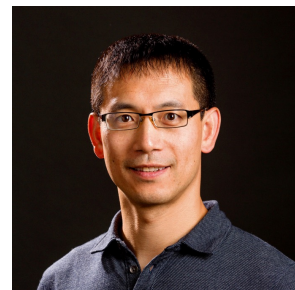
Guobin Hu
Scientist



Jake Kaminsky
Scientific
Associate



Qun Liu
PI, Biology Dept.
BNL



Yong Xiong
Professor
Yale



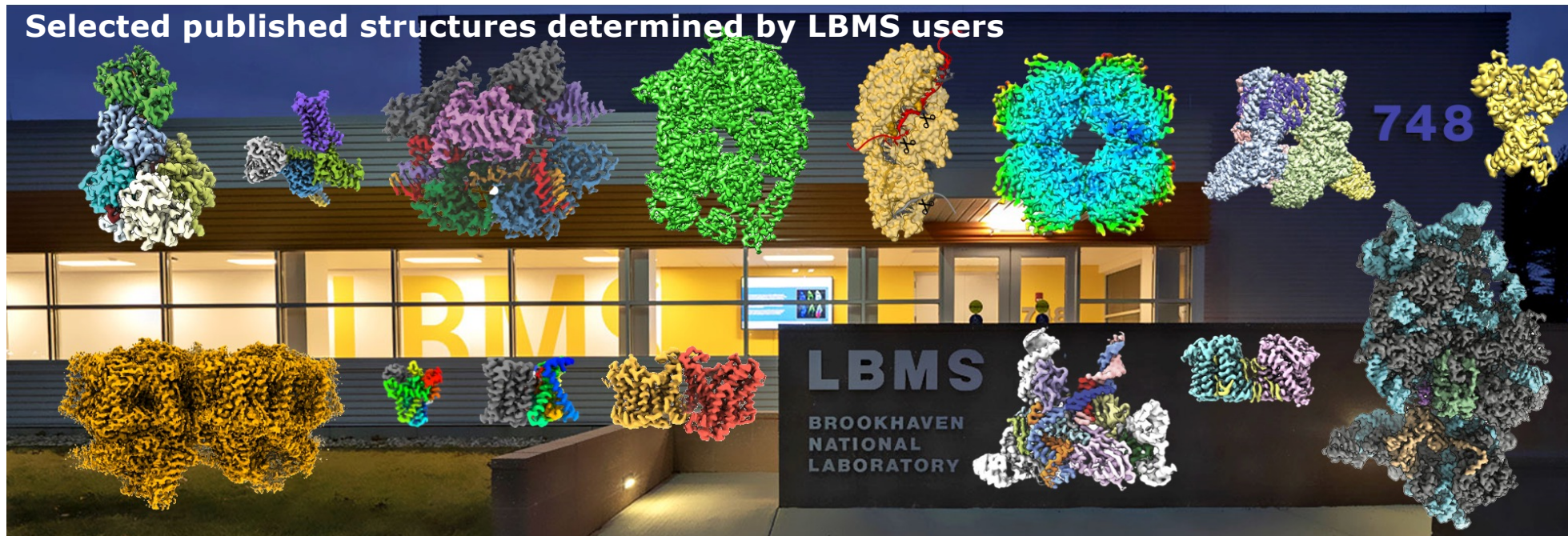
Dongyan Tan
Assistant Professor
SBU



Jun Liu
Professor
Yale

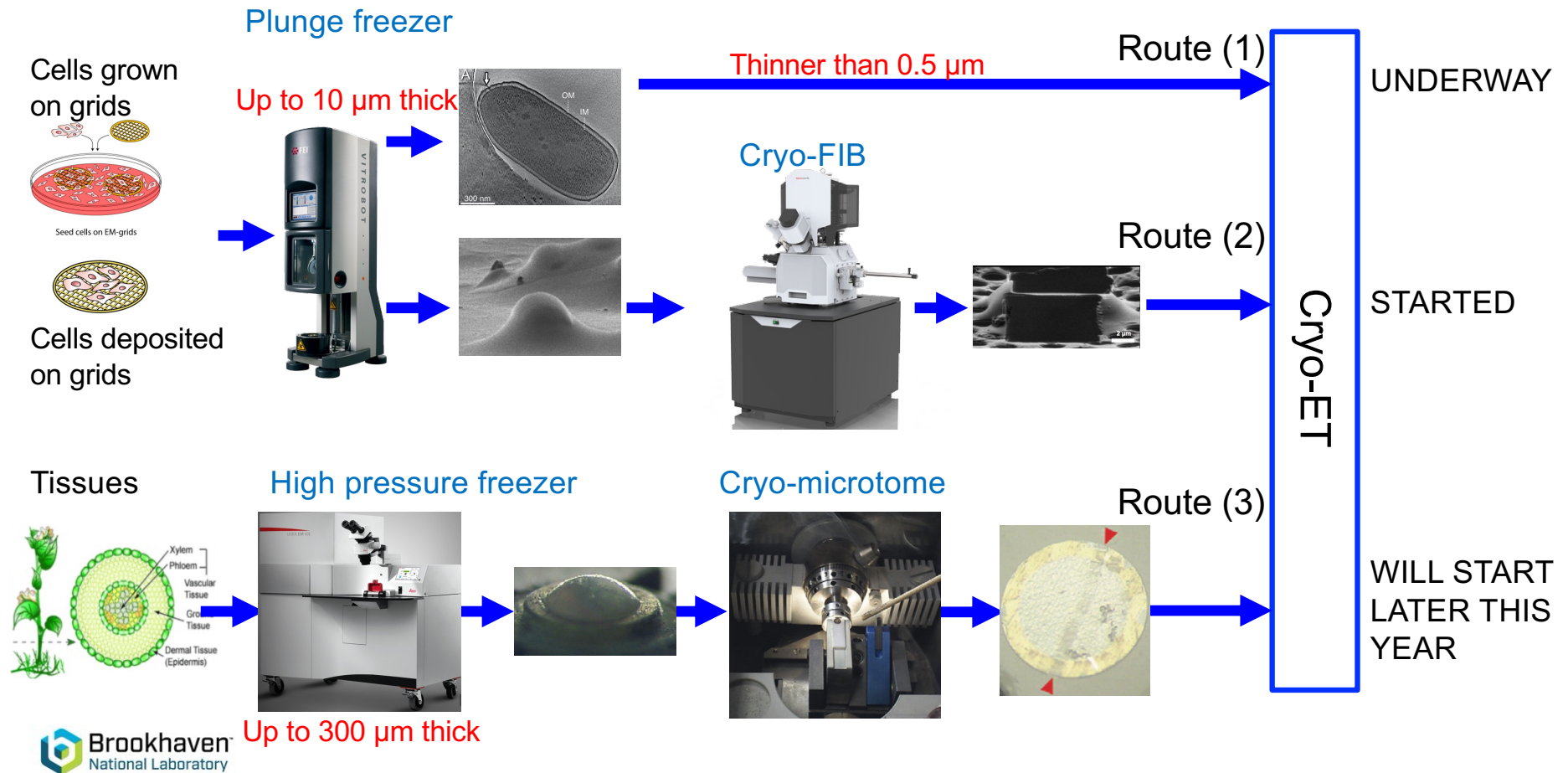
LBMS statistics: CY 2021-2023

Selected published structures determined by LBMS users



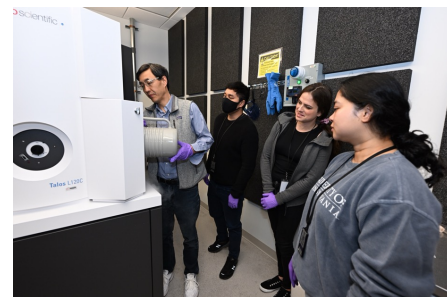
Year	Days used by users	Images collected	Structures determined ($\leq 4\text{\AA}$)	Publications
CY2021	123	533,287	50	1
CY2022	229	809,032	71	10
CY2023	233	1,019,736	116	17

Implement, optimize, and develop cryo-ET workflows



Transition from quarterly half-day workshops to semi-annual 2-3 days in-person workshops

- Enhanced Hands-On Experience
- Comprehensive Training
- Increased Interaction
- Immediate Feedback
- Boosted Motivation and Engagement of participants



- Attendees really benefitted from the workshop. They now feel very comfortable if they have to perform experiments by themselves.
- Attendees appreciated the staff having the expertise and knowledge to answer any questions during the training modules.

Important websites and contact information

- LBMS website: <https://www.bnl.gov/cryo-em/>
 - Online calendar: <https://lbmscalendar.bnl.gov>
 - Registration & training: <https://www.bnl.gov/cryo-em/userguide/next-steps.php>
 - PASS for proposal management: <https://pass.bnl.gov>
 - Forms: <http://www.bnl.gov/cryo-em/forms.php>.
 - LBMS mailing list: lbms-em-l@lists.bnl.gov
 - Cryo-EM workshop: <https://www.bnl.gov/cryoemspcourse/>
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- Nancye Wright, Proposal Coordinator: 631-3445132, wright@bnl.gov
 - Guobin Hu, EM Scientist: 631-3447915, ghu@bnl.gov
 - Jake Kaminsky, Scientific Associate: 631-3448980, jkaminsky@bnl.gov
 - Ligu Wang, Director of Scientific Operations: 631-3447011, lwang1@bnl.gov



Thank you!