

# FULL PROGRAMME — IFDEPS 2024

## International Forum on Detectors for Photon Science



Port Jefferson, March 17th - 20th

programme updated on: March 13, 2024

### Sunday 17 March

- 14:00 Shuttle departure from JFK Airport  
 16:00 Arrival to forum venue (Danford's Hotel & Marina, Port Jefferson)

#### Session 1 – IFDEPS Opening

Chair: P. Fajardo

- 17:00 Welcome address: motivation and goals of IFDEPS – Gabriella Carini  
 17:10 Opening talk: Eric Johnson  
 17:30 Opening talk: Ken Evans-Lutterodt - Update and Progress towards an African Light Source  
 18:00 Opening talk: Stefan Vogt - Upgraded light sources and detectors: unique opportunities  
 18:30 Questions and clarifications

- 19:00 Dinner

### Monday 18 March

#### Session 2 – Update on development activities at photon sources

Chair: G. Carini

- 8:30 Short summary overviews from participating facilities.  
 Contributions from: ALS, APS, NSLS-II, LCLS, LNLS, CLS, CHESS,  
 DESY, DLS, ELETTRA, ESRF, European XFEL, MAX-IV, PSI, SOLEIL,  
 NanoTerasu, PAL-XFEL, SACLA, SPring-8

- 10:30 Coffe break

Highlight Topic: Single-photon sensitive charge integrating detectors

#### Session 3 – Charge integrating detectors: update on ongoing projects

Chair: M. Turcato

- 10:45 Kate Shanks (CHESS, USA) – MM-PAD-2.1: a detector for high-flux, wide-dynamic-range synchrotron studies up to 10 kHz  
 11:15 Takaki Hatsui (RIKEN SPring-8 Center, Japan) – Deployment status of CITIUS, a 17.4 kframes/s integration-type X-ray imaging detector with 1 Gphoton/s/pixel detection capability at 10 keV  
 11:45 Aldo Mozzanica (PSI, Switzerland) – The JUNGFR AU detector: beam-line experience and future developments

- 12:30 Lunch

Highlight Topic: Single-photon sensitive charge integrating detectors

#### Session 4 – Charge integrating detectors: new projects and concepts

Chair: K. Shanks

- 14:00 Quinn Looker (Sandia Laboratories, USA) – Ultrafast imaging with the UXI family of hybrid CMOS detectors  
 14:30 Alessandro Marras (DESY, Germany) – Development of CoRDIA: an imager for Diffraction-Limited Synchrotron Rings and Continuous-Wave Free Electron Lasers  
 15:00 Matt Wilson (UKRI STFC, UK) – XIDyn: A high dynamic range and high timing resolution hard X-ray detector for 4<sup>th</sup> generation light sources

- 15:30 Coffe break

Highlight Topic: Single-photon sensitive charge integrating detectors

#### Session 5 – Charge integrating detectors: future trends and ideas

Moderators:

- 16:00 Round table

- 19:00 Dinner

**Tuesday 19 March**

**Session 6 – Technology updates: novel silicon sensors for X-ray detection**

Chair: B. Schmitt

- 8:30 Gabriele Giacomini (BNL, USA) – *Low-Gain Avalanche Diodes for X-ray detection*
- 9:00 Jianguo Zhang (PSI, Switzerland) – *Development of sensors for soft X-ray hybrid detectors*
- 9:30 Jelena Ninkovic (MPG HLL, Germany) – *Novel sensor developments for photon science at the Semiconductor laboratory of the Max Planck Society*
- 10:00 Discussion

10:15 *Coffe break*

**Session 7 – Online processing and data reduction: on-chip advanced methods**

Chair: P. Maj

- 10:30 Lorenzo Rota (SLAC, USA) – *Beyond 100000 fps: on-chip data reduction with the SparkPix detector family*
- 11:00 Tao Zhou (ANL, USA) – *Machine learning based data reduction at the edge and on chip at the APS*
- 11:30 Robert Szczygiel (AGH, Poland) – *Digital data processing in pixelated readout ASICs*
- 12:00 Discussion

12:15 *Lunch*

**Session 8 – Online processing and data reduction: DAQ and automation**

Chair: D. Pennicard

- 14:00 Martin Fuchs (BNL, USA) – *Commercial detectors at the NSLS-II life science beamlines - experiences from in-house research and from user operations*
- 14:30 Filip Leonarsky (PSI, Switzerland) – *JungfrauJoch: detector read-out and on-the-fly analysis system for synchrotrons and XFELs*
- 15:00 Pablo Fajardo (ESRF, France) – *Using remote direct memory access (RDMA) for low-latency high-throughput data acquisition and redistribution.*
- 15:30 Discussion

15:45 *Coffe break*

**Session 9 – Data reduction pipelines**

Chair: O. Matilla

- 16:00 Jana Thayer (SLAC, USA) – *Future Directions in Detector and Data Systems Integration through the lens of LCLS*
- 16:30 Philipp Schmidt (European XFEL, Germany) – *Data reduction activities at European XFEL: early results*
- 17:00 Haruki Nishino (RIKEN SPring-8 Center, Japan) – *SACLA/SPring-8 Data Reduction Pipeline*
- 17:30 Discussion

19:00 *Dinner*

**Wednesday 20 March**

**Session 10 – First operation experience with new detectors**

Chair: F. Orsini

- 8:30 Connie Hanson (SLAC, USA) – *Commissioning and Operational detector experience at LCLS: current and coming detectors*
- 9:00 Matteo Porro (European XFEL, Germany) – *Soft X-ray detection with Megaframe rate at the European XFEL: the DSSC camera*
- 9:30 Yukio Takahashi (U. Tohoku, Japan) – *High-resolution and high-sensitivity X-ray ptychography using the CITIUS detector*
- 10:00 Discussion

*Coffee Break*

**Session 11 – IFDEPS 2024 summary and wrap up**

Chair: T. Hatsui

- 10:30 Summary and outlook

11:15 Future IFDEPS events: discussion and closing remarks

11:30 *Lunch served for attendees leaving on the shuttle to JFK.*

11:30 *Shuttle departs from Danford's to BNL (for NSLS-II facility Tour)- Lunch served at BNL*

13:00 *Shuttle departs from Danford's to JFK*

15:30 *Shuttle departs from BNL to JFK*