


PETRA IV Workshop - Soft Matter, Health, and Life Science

 Oct 28, 2020, 8:00 AM → Oct 30, 2020, 6:45 PM Europe/Berlin

 Online

Description Recently, DESY has opened a call for PETRA IV scientific instrumentation, where researchers from all fields of science were asked to submit proposals for experiments (see [indico page](#)).

The workshop "Soft Matter, Health, and Life Science" is one out of four PETRA IV workshops dedicated to science and instrumentation and organized within the process of developing the PETRA IV scientific instrumentation proposals.

The workshops are aiming to strengthen the scientific exchange among different user communities. Here the emphasis will be on bringing together current and future users working in the field of Soft Matter, Health, and Life Science to exchange creative and interdisciplinary ideas and trends as well as identifying beamline parameters required to enable potential experiments at PETRA IV.

This workshop has a scientific focus with mostly scientifically-driven presentations. It is encouraged to include ideas for PETRA IV instrumentation into the scientific talks in order to identify synergies for an optimal PETRA IV beamline portfolio.

This workshop will be an online workshop.

- Click [here](#) for more information on the **poster session** and **Zoom links**.

Organization Committee: J. Hakanpää, D. Svergun, O. Wendt, F. Lehmkuhler, T. F. Keller, T. Salditt, F. Westermeier, M. Sprung, F. Bertram, G. Grübel, W. Caliebe, C. Shen, B. Murphy, T. Schneider, S. Roth, M. Etter, G. Falkenberg, S. Techert, K. Spiers, B. Struth, C. Krywka, S. Haas, K. Bagschik, S. Klumpp, O. Seeck, H. C. Wille, M. Kreuzeder

Registration

 You are registered for this event.

Support

 p4-workshop-support@desy.de

WEDNESDAY, 28 OCTOBER

9:00 AM → 9:20 AM **Opening Session: -- White Zoom Room --, Chair: Kai Bagschik**

 Online

9:00 AM

Welcome ⌚ 15m

Speaker: Christian Schroer (DESY)

9:15 AM

Zoom Session Netiquette ⌚ 5m

Speaker: Stephan Klumpp (DESY)

9:20 AM

→ 10:00 AM

Enabling Technologies (Techniques): -- White Zoom Room --, Chairs: Kai Bagschik, Dmitri Svergun

📍 Online

9:20 AM

Towards Biological SAXS at PETRAIV ⌚ 20m

Speaker: Clement Blanchet (EMBL)

9:40 AM

Ultimate automation in macromolecular crystallography: what are the advantages? ⌚ 20m

Speaker: Matthew Bowler (EMBL)

10:00 AM

→ 10:15 AM

Coffee Break ⌚ 15m

10:15 AM

→ 12:30 PM

Structural Biology with X-rays I.: -- White Zoom Room --, Chairs: Thomas Schneider, Johanna Hakanpää

📍 Online

10:15 AM

Serial crystallography for protein dynamics ⌚ 20m

Speaker: Henry Chapman (DESY, CFEL)

10:35 AM

Synchrotron serial crystallography and time-resolved structural biology at diffraction limited storage rings

⌚ 20m

Speaker: Arwen Pearson (Universität Hamburg)

10:55 AM

Opportunities for Structural Enzymology and Crystallography of Large Biological Complexes at the PetralV storage ring ⌚ 20m

Speakers: Ashwin Chari (MPI), Kai Tittmann (Goettingen University)

11:15 AM

Coffee Break ⌚ 15m

11:30 AM

Micro-crystallography Fronting Functional Fibrils in Infectious and Neurodegenerative Diseases ⌚ 20m

Speaker: Meytal Landau (EMBL)

11:50 AM

Alpha-ketoamides targeting the main protease of SARS-CoV-2

🕒 20m

Speaker: Linlin Zhang (Luebeck University)

12:10 PM

Our dream beamline for industrial crystallography

🕒 20m

Speaker: Laura Delarbre (Sanofi)

12:30 PM

→ 1:30 PM

Lunch Break 🕒 1h

1:30 PM

→ 3:45 PM

Structural Biology with X-rays II.: -- White Zoom Room --, Chairs: Dmitri Svergun, Michael Sprung

📍 Online

1:30 PM

Kinetics, dynamics and single molecules – advanced sample environments for biological SAXS

🕒 20m

Speaker: Manfred Rößle (Technische Hochschule Lübeck)

1:50 PM

Recent and future BioSAXS applications in pharmaceutical industry

🕒 20m

Speaker: Norbert Nagel (AbbVie Deutschland)

2:10 PM

Chemometric decomposition of SAXS datasets - Novel opportunities for transient flexible complexes

🕒 20m

Speaker: Pau Bernado (CBS-CNRS, Montpellier)

2:30 PM

Coffee Break 🕒 15m

2:45 PM

Time-resolved SAXS experiments at P12

🕒 20m

Speaker: Henning Tidow (University of Hamburg)

3:05 PM

Opportunities to study dynamics of (crowded) biological systems at PETRA IV by XPCS

🕒 20m

Speaker: Christian Gutt (Universität Siegen)

3:25 PM

Wrap-up Discussion

🕒 20m

Speakers: Dmitri Svergun, Johanna Hakanpää, Thomas Schneider

3:45 PM → 4:00 PM **Coffee Break** ⌚ 15m

4:00 PM → 6:15 PM **Poster Session**

📍 -- based on remo.co -- (please ...

THURSDAY, 29 OCTOBER

9:00 AM → 10:00 AM **Enabling Technologies (Techniques): -- White Zoom Room --, Chair: Kai Bagschik**

📍 Online

9:00 AM | **Bionanoprobe: Cryo X-ray Fluorescence imaging at PETRA IV** ⌚ 20m

Speaker: Axel Rosenhahn (Ruhr-Universität Bochum)

9:20 AM | **GISAXS/GIWAXS at PETRA IV** ⌚ 20m

Speaker: Stephan V. Roth (DESY)

9:40 AM | **Nuclear Resonant Scattering of Chemical and Biological Systems at PETRA IV** ⌚ 20m

Speaker: Volker Schünemann (TU Kaiserslautern)

10:00 AM → 10:15 AM **Coffee Break** ⌚ 15m

10:15 AM → 12:30 PM **Biology, Biomedical and Biomaterials Research I.: -- White Zoom Room --, Chairs: Kathryn Spiers, Bernd Struth, Kai Bagschik**

📍 Online

10:15 AM | **Waveguide-based holo-tomography: opportunities of PETRAIV for high resolution 3d bioimaging.** ⌚ 20m

Speaker: Tim Salditt (University of Göttingen)

10:35 AM | **3D virtual histology with X-ray speckle-based phase tomography** ⌚ 20m

Speaker: Marie-Christine Zdora (University of Southampton)

10:55 AM | **How COVID-19 Damages the Lung** ⌚ 20m

Speaker: Mark Kühnel (Medizinische Hochschule Hannover)

11:15 AM

Coffee Break ⌚ 15m

11:30 AM

Characterizing mineralized tissues by small angle x-ray scattering and complementary methods ⌚ 20m

Speaker: Wolfgang Wagermaier (MPI Golm)

11:50 AM

Nanoscale Chemical Imaging of Human Infection Processes: a cause worth pursuing. ⌚ 20m

Speaker: Björn De Samber (University Antwerp)

12:10 PM

Nanoscopic X-ray Fluorescence Imaging of cells with a high energy X-ray cryo nano-probe. ⌚ 20m

Speaker: Sylvain Bohic (Inserm, ESRF)

12:30 PM

→ 1:30 PM

Lunch Break ⌚ 1h

1:30 PM

→ 3:45 PM

Polymers: -- White Zoom Room --, Chairs: Stephan Roth, Florian Bertram

📍 Online

1:30 PM

Breaking fractals is a bad idea: structure and conductivity of carbon black in electrically conductive rubber composites ⌚ 20m

Speaker: Tobias Kraus (INM)

1:50 PM

In situ Polymer Deformation ⌚ 20m

Speaker: Konrad Schneider (IPF)

2:10 PM

Microfluidics ⌚ 20m

Speaker: Fredrik Lundell (KTH)

2:30 PM

Coffee Break ⌚ 15m

2:45 PM

Structural transformations in thin block copolymer films ⌚ 20m

Speaker: Dorthe Posselt (Roskilde University)

3:05 PM

Polymer Dynammmics investigated by XPCS ⌚ 20m

Speaker: Jaydeep Basu (IISc)

3:25 PM

The use of real-time synchrotron diffraction to understand mechanochemical reactions: from molecular to framework materials ⌚ 20m

Speaker: Tomislav Friscic (McGill University)

3:45 PM

→ 4:00 PM

Coffee Break ⌚ 15m

4:00 PM

→ 6:15 PM

Metals and Bio-Systems: -- White Zoom Room --, Chairs: Wolfgang Caliebe, tbd

📍 Online

4:00 PM

Challenges and opportunities for electrochemical operando X-ray spectroscopy on (bio)-catalytic systems

⌚ 20m

Speaker: Olaf Ruediger

4:20 PM

Biological Co-S-based systems as potential water oxidation catalysts ⌚ 20m

Speaker: Ingrid Span

4:40 PM

High repetition optical pump nuclear resonant scattering probe techniques for the investigation of dynamical processes in the ps-time regime: From molecular switches to single molecular magnets ⌚ 20m

Speaker: Volker Schünemann (TU Kaiserslautern)

5:00 PM

Coffee Break ⌚ 15m

5:15 PM

Metalloenzymes: Getting on the NRVS ⌚ 20m

Speaker: James Birrell (MPI)

5:35 PM

Combined micro-XRF/XANES spectroscopy of iron-oxide nanoparticles in biological tissues. ⌚ 20m

Speaker: Mikhail Soldatov (Southern Federal University)

5:55 PM

Opportunities for bioinorganic chemistry in the medium energy (2 - 13 keV) regime

🕒 20m

Speaker: Simon James (ANSTO)

FRIDAY, 30 OCTOBER

9:00 AM

→ 10:00 AM

Enabling Technology (Techniques): -- White Zoom Room --, Chair: Kai Bagschik, Christian Schroer

📍 Online

9:00 AM

X-ray Spectroscopy of Biological Catalysts 🕒 20m

Speaker: Serena DeBeer (Max Planck Institute for Chemical Energy Conversion)

9:20 AM

XPCS at PETRA IV 🕒 20m

Speaker: Michael Sprung (DESY)

9:40 AM

Scanning nanoSAXS of biological matter 🕒 20m

Speaker: Sarah Köster (Georg-August-University Göttingen)

10:00 AM

→ 10:15 AM

Coffee Break 🕒 15m

10:15 AM

→ 12:30 PM

Soft Matter Surfaces and Interfaces: -- White Zoom Room --, Chairs: Chen Shen, Stephan Roth

📍 Online

10:15 AM

Studies on printing organic electronics, and polymer surface and interfaces 🕒 20m

Speaker: Wei MA (Xi'an JiaoTong University)

10:35 AM

Studies on in situ polymerization using (future) synchrotron X-ray beam 🕒 20m

Speaker: Eva Malmström Jonsson (KTH)

10:55 AM

Ultrafast Dynamics of Liquid Crystals 🕒 20m

Speaker: Laura Cattaneo (MPIK)

11:15 AM

Coffee Break ⌚ 15m

11:30 AM

The secret lives of liquid interfaces ⌚ 20m

Speaker: Moshe Deutsch (Bar-Ilan University)

11:50 AM

Structural characterization of biomolecular layers with X-ray reflection, diffraction and fluorescence techniques ⌚ 20m

Speaker: Emanuel Schneck (Technische Universität Darmstadt)

12:10 PM

Biomembrane Studies using X-ray and Neutron Scattering ⌚ 20m

Speaker: Beate Kloesgen (University of Southern Denmark)

12:30 PM

→ 1:30 PM

Lunch Break ⌚ 1h

1:30 PM

→ 3:45 PM

Biology, Biomedical and Biomaterials Research II.: -- White Zoom Room --, Chairs: Kathryn Spiers, Bernd Struth, Kai Bagschik

📍 Online

1:30 PM

Investigation of the biological fate of gadolinium based MRI contrast agents using X-ray Fluorescence Nanoscopy ⌚ 20m

Speaker: Lars Lühl (TU Berlin)

1:50 PM

Some ideas on how the interaction of nanoparticles with cells could be studied with synchrotron radiation. ⌚ 20m

Speaker: Wolfgang Parak (CHYN)

2:10 PM

Serial tomography of small animals with synchrotron radiation: digitization of large sample collections ⌚ 20m

Speakers: Thomas van de Kamp (KIT), Tilo Baumbach (KIT)

2:30 PM

Coffee Break ⌚ 15m

2:45 PM

Multiscale element-specific bioimaging in situ ⌚ 20m

Speaker: Claus-Christian Glüer (CAU Kiel)

3:05 PM

High throughput multiscale nanotomography for in situ Mg corrosion ⌚ 20m

Speaker: Berit Zeller-Plumhoff (HZG)

3:25 PM

Deciphering the nano-scale deformation of bone using in situ SAXS/WAXS with compression and tension ⌚ 20m

Speaker: Imke Fiedler (UKE HH)

3:45 PM

→ 4:00 PM

Coffee Break ⌚ 15m

4:00 PM

→ 6:15 PM

CMWS Research on Soft Matter, Health and Life Science: -- White Zoom Room --, Chairs: Felix Lehmkuhler, Claudia Goy, Gerhard Grübel

📍 Online

4:00 PM

CMWS introduction ⌚ 20m

Speaker: Felix Lehmkuhler (DESY)

4:20 PM

Advanced X-ray action spectroscopy to study the structure and hydration of biomolecules ⌚ 20m

Speaker: Lucas Schwob (DESY)

4:40 PM

Crystallization in supercooled liquids by X-ray scattering from microscopic liquid jets ⌚ 20m

Speaker: Robert Grisenti (University Frankfurt)

5:00 PM

Coffee Break ⌚ 15m

5:15 PM

Microsecond XPCS for Soft Matter ⌚ 20m

Speaker: Francesco Dallari (DESY)

5:35 PM

Dynamics in glassy water ⌚ 20m

Speaker: Katrin Amann-Winkel (Stockholm University)

5:55 PM

Structure and dynamics at liquid interfaces ⌚ 20m

Speaker: Bridget Murphy (University Kiel)

6:15 PM

→ 6:45 PM

Summary / Close Out: -- White Zoom Room --, Chair: Kai Bagschik, Stephan Klumpp, Christian Schroer, Hans-Christian Wille, Oliver Seeck