

HZB Photon School 2021  
Preliminary program – as of March 18<sup>th</sup>, 2021

1<sup>st</sup> Week, LECTURES, online

MONDAY, 22 <sup>nd</sup> March (Welcome, Overview, and Light)	
09.00-09.30	<b>WELCOME AND OVERVIEW</b> Marcus Bär / Catalina Jiménez
09.30-10.00	<b>Overview presentation on BESSY II</b> Antje Vollmer
10.00-10.15	<b>15' BREAK</b>
10.15-11.15	<b>Storage ring-based lightsources: Current status and future trends</b> Andreas Jankowiak
11.15-12.15	<b>Insertion devices – Undulators for photon production</b> Johannes Bahrtdt
12.15-13.15	<b>1h BREAK</b>
13.15-14.15	<b>X-ray optics and beamlines for synchrotron radiation experiments</b> Jens Viefhaus
14.15-14.45	<b>Virtual tour of BESSY II</b> <i>Online</i>
14.45-15.00	<b>15' BREAK</b>
15.00-16.30	<b>Interaction of X-rays with matter – Part I</b> Alexander Föhlisch
16.30-16.45	<b>15' BREAK</b>
16.45-17.45	<b><i>What do we learn from operando soft X-ray spectroscopy experiments about heterogeneous catalytic reactions? – Special Invited Lecture</i></b> Axel Knop-Gericke

TUESDAY, 23 <sup>rd</sup> March (Interaction of X-rays with matter, X-ray emission / absorption)	
09.00-10.30	<b>Interaction of X-rays with matter – Part II</b> Alexander Föhlisch
10.30-10.45	<b>15' BREAK</b>
10.45-11.45	<b>Introduction to XANES and EXAFS</b> Ivo Zizak
11.45-12.30	<b>In-situ/operando X-ray absorption spectroscopy</b> Janis Timoshenko
12.30-13.30	<b>1h BREAK</b>
13.30-14.30	<b>X-ray fluorescence spectroscopy and microscopy: Basics, methods, and applications</b> Birgit Kanngießer
14.30-14.45	<b>15' BREAK</b>
14.45-15.30	<b>Molecular Electronic Structure from RIXS: Experimental and Theoretical Perspectives</b> Annette Pietzsch and Vinícius Vaz da Cruz
15.30-15.45	<b>15' BREAK</b>
15.45-16.30	<b>Theoretical core-level spectroscopy at highest accuracy and with techniques from artificial intelligence</b> Annika Bande
16.30-17.30	<b>Participant's presentations and informal discussion I</b> (max. 5'/participant, a bit about yourself, your research, your motivation to attend this school. Let's have a drink together, meet alumni and talk about research opportunities at BESSY II)

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WEDNESDAY, 24 <sup>th</sup> March (Photoemission & Dynamics)	
09.00-10.30	<b>Photoemission: Quantification, depth-“profiling”, and energy level alignment</b> Marcus Bär
10.30-10.45	<b>15' BREAK</b>
10.45-11.30	<b>In-situ XPS studies of surface reactions</b> Christian Papp
11.30-12.15	<b>How to detect electrons from solutions - Liquid-jet photoelectron spectroscopy</b> Robert Seidel
12.15-13.00	<b>Photoemission for studying inorganic and organic electronic materials</b> Norbert Koch
13.00-14.00	<b>1h BREAK</b>
14.00-15.00	<b>Angle-resolved photoemission for the investigation of topological matter</b> Oliver Rader
15.00-15.15	<b>15' BREAK</b>
15.15-16.00	<b>Magnetic spectroscopy and scattering</b> Christian Schüßler-Langeheine
16.00-16.45	<b>Electronic properties of metal centers and metal clusters in gaseous and liquid environments</b> Tobias Lau
16.45-17.00	<b>15' BREAK</b>
17.00-17.45	<b>Participant's presentations and informal discussion II</b> (max. 3 slides/participant or 5')

THURSDAY, 25 <sup>th</sup> March (Microscopy & Materials)	
09.00-09.45	<b>PEEM: Magnetic imaging and spectroscopy at the nanoscale</b> Florian Kronast
09.45-10.30	<b>Scanning transmission X-ray microscopy</b> Markus Weigand / Simone Raoux
10.30-10.45	<b>15' BREAK</b>
10.45-11.15	<b>Introduction to infrared spectroscopy, beamlines, and spectrometers</b> Ulrich Schade
11.15-11.45	<b>Advances and Applications of Infrared Synchrotron Radiation in Microspectroscopy</b> Ljiljana Puskar
11.45-12.00	<b>15' BREAK</b>
12.00-12.30	<b>X-ray microscopy</b> Stephen Werner / Gerd Schneider
12.30-13.30	<b>1 h BREAK</b>
13.30-14.00	<b>Tomoscopy: Time-resolved tomography for materials science</b> Francisco García-Moreno
14.00-15.00	<b>Data Collection at the HZB-MX beamlines and activities targeted towards SARS-CoV-2</b> Manfred Weiss
15.00-15.30	<b>30' BREAK</b>

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15.30-16.15	<b>Current and future developments in photon science at HZB</b> Jan Lüning
16.15-16.30	<b>15' BREAK</b>
16.30-17.30	<b>Participant's presentations and informal discussion III</b> (max. 5' /participant)

**FRIDAY, 26<sup>th</sup> March (Structure and wrap-up)**

09.00-10.30	<b>Fundamentals of Diffraction and Crystallography</b> Susan Schorr
10.30-10.45	<b>15' BREAK</b>
10.45-11.45	<b>Macromolecular structure determination by synchrotron X-ray crystallography</b> Manfred Weiss
11.45-12.30	<b>In-situ X-ray Diffraction</b> Roland Mainz
12.30-13.30	<b>1h BREAK</b>
13.30-14.15	<b>Anomalous X-ray Diffraction and its Use in the Analysis of Atomic Structures</b> Daniel Többens
14.15-15.00	<b>Introduction to Small Angle X-ray Scattering (SAXS) and Anomalous SAXS</b> Armin Hoell
15.00-15.15	<b>15' BREAK</b>
15.15-16.15	<b>Energy Materials Research with X-rays</b> Marcus Bär
16.15-16.30	<b>15' BREAK</b>
16.30-17.30	<b>Participant's presentations and informal discussion IV</b> (max. 5' /participant)
17.30-17.45	<b>Wrap-up first week, feedback</b>

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2<sup>nd</sup> Week: on-line practical trainings (limited places)

MONDAY, 29 <sup>th</sup> March	
09.00-10.30	<b>Participant's presentations and informal discussion V</b> (max. 3 slides/participant or 5')
10.30-10.45	<b>15' BREAK</b>
10.45-11.30	<b>Workshop on how to prepare good beamtime proposals</b> Astrid Brandt
11.30-12.00	<b>Workshop on how to prepare the poster and BESSY II experimental report</b> Catalina Jiménez
12.00-13.00	<b>1h BREAK</b>
13.00-18.00	<b>Online training – Day 1</b> Meet your trainer in a small group of two or three people and start activity.

TUESDAY, 30 <sup>th</sup> March	
09.00-18.00	<b>Online training – Day 2</b> Full dedication to your training.
12.00-13.00	<b>1h BREAK</b>

WEDNESDAY, 31 <sup>st</sup> March	
09.00-18.00	<b>Online training – Day 3</b> Complete discussion of results and interpretation. Prepare and submit poster and experimental report.
12.00-13.00	<b>1h BREAK</b>

THURSDAY, 1 <sup>st</sup> April	
09.00-12.00	<b>Rehearsal for online Poster competition</b> All
12.00-13.00	<b>1h BREAK</b>
13.00-15.00	<b>Online poster competition</b> All
15.00-15.30	<b>Closing Remarks, Certificate Distribution &amp; Farewell</b> Jan Lüning