

# **Status of Beamlines at MAX IV**

**January 2022**



### ***Status of MAX IV***

The MAX IV accelerator systems are fully operational, 14 beamlines are taking X-ray light, and 13 are serving general users. The DanMAX beamline began serving general users in late 2021. SoftiMAX will begin user operations in spring 2022.

The winter shutdown activities were completed according to plan. This included the installation of the insertion devices for the ForMAX and MicroMAX beamlines in the 3 GeV storage ring. In addition, the Swedish Radiation Safety Authority approved the radiation safety permit application to start commissioning of ForMAX, and the permit application for MicroMAX was submitted.

Construction of the ForMAX and MicroMAX beamlines experienced some delays:

- ForMAX - The start date of the expert user program was postponed from Q1 to Q3 2022 due to flight tube manufacturing delays. The start of general user operations is still planned for Q1 2023.
- MicroMAX - Supply chain disruptions across the globe, especially affecting electronic components, have impacted the delivery of instrumentation from some manufacturers. The start of general user operations is still planned for Q2 2023.

Appendix 1 lists the status of individual beamlines with techniques currently available to users on operating beamlines and also lists estimated dates to deliver planned capabilities for the beamlines in commissioning or under construction.

### ***Science impact and outlook***

The scientific output of MAX IV continues to grow, with 127 papers registered to date for 2021. Seven beamlines published at least 10 papers in 2021. The scientific impact of the publications is growing as well, with about 50% of the articles published in high-impact journals (i.e., IF>5) about 15% in journals with IF >10. This is, for example, highlighted with the first publication on work performed on the DanMAX beamline, in the journal *Nanoscale*. Also published in 2021 was a measurement of the coherent beam properties at the CoSAXS beamline.

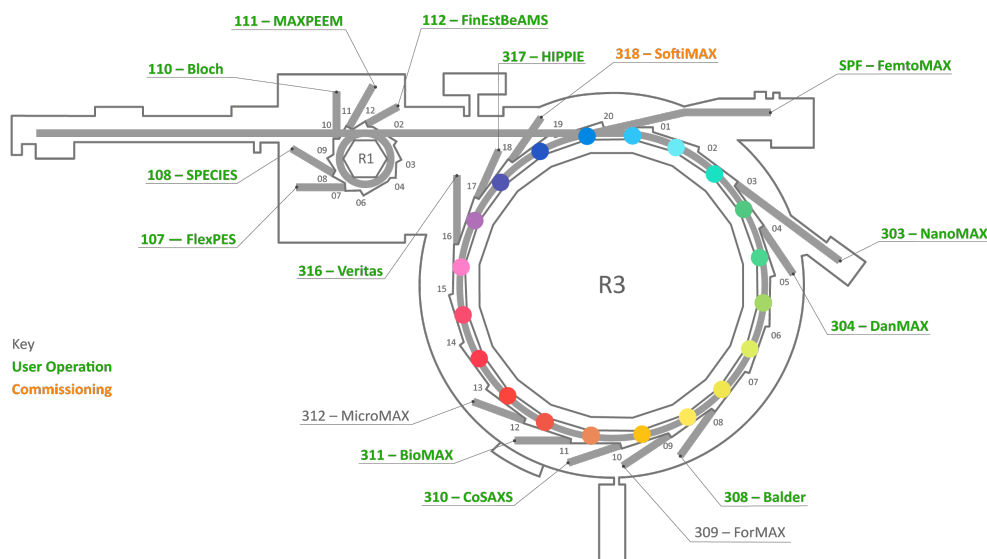
Appendix 2 lists the publications registered to date for 2021. Registered MAX IV and MAX-lab publications are available at <https://www.maxiv.lu.se/science/publications>.

# **Status of beamlines at MAX IV**

## **Appendix 1**

### **Current Beamline Status**

## Overall beamline status



## Status of individual beamlines

### Balder

Available for	Techniques
General Users	XANES and EXAFS in transmission, continuous scanning down to 30 s/EXAFS
General Users	XANES and EXAFS in fluorescence with 7 element SDD, continuous scanning down to 30 s/EXAFS
Expert Users	XES, expert mode with limited angular range
General Users	XES (Q3 2022)
General Users	XRD (Q3 2022)

### BioMAX

Available for	Techniques
General Users	Data collection at fixed energy between 6-24 keV, detector distance between 126-900 mm, beam focus of 20x5 $\mu\text{m}$ or 50x50 $\mu\text{m}$ , defining apertures of 5, 10, 20, 50, and 100 $\mu\text{m}$
General Users	Automated sample mounting and dismounting from UniPucks, 29 puck positions in dewar

## BioMAX

Available for	Techniques
General Users	Sample temperature 100 K; room temperature with or without humidity control available for manual mounting only
General Users	SAD and MAD experiments
General Users	Automated data integration, scaling and merging. Offline remote access for manual data processing
General Users	SX experiments using HVE injector, fixed target scan using the MD3. Please contact beamline manager
General Users	Element identification by XRF
General Users	<u>Remote data collection</u>
General Users	<u>Fragment-based drug screening</u>

## Bloch

Available for	Techniques
General Users	High-resolution ARPES using deflection based analyzer or 6-axis manipulator
General Users	Linear vertical or horizontal polarised light from EPU, with energy range 10-1000eV (peak flux and resolution 15-200 eV)
General Users	Online STM, 50K - 300K
Expert Users	Spin-resolved ARPES with 3D-VLEED detector
General Users	Spin-resolved ARPES (Q1 2023)

## CoSAXS

Available for	Techniques
General Users	SAXS at 12.4 keV, q-range $1 \times 10^{-3}$ to $0.5 \text{ \AA}^{-1}$
General Users	Laser triggered, temperature jump time-resolved SAXS (2 ms time-resolution), at 12.4 keV, q-range $1 \times 10^{-3}$ to $0.5 \text{ \AA}^{-1}$ and ca. 1.5 to $2.3 \text{ \AA}^{-1}$
General Users	Solution and Bio-SAXS, with pipetting autoloader from 96 well plates, flow-through quartz capillary, in-line HPLC
General Users	Multiple capillary, multiple position solid sample holders, with thermostatic water bath; Linkham heating stage with LN2 cooling pump
General Users	WAXS, micro fluidics (Q3 2022)
General Users	Advanced sample environment: stopped flow, rheology, DSC (Q3 2023)

### DanMAX

Available for	Techniques
General Users	PXRD in Debye-Scherrer geometry using 2D area detector in energy range 15-35 keV
General Users	PXRD: Sample spinner in horizontal and vertical geometry. Rotation stage in vertical geometry
General Users	PXRD: Sample temperature from 90 K - 500 K
General Users	PXRD: Stand-alone sample user-designed environments. Only pre-approved equipment
General Users	2D PXRD and XRF mapping using continuous and step scans
General Users	Total scattering, SDD~95mm, E=35 keV, Q <sub>max</sub> ~20 Å <sup>-1</sup>

### FemtoMAX

Available for	Techniques
General Users	Scattering set-up (SAXS, WAXS) air or He-environment
General Users	Scattering set-up (in vacuum). Limited scattering range +/-10 degrees horizontal 0-40 degrees vertical Vacuum better than 1E-7 mBar; 2E-6 with Pilatus connected to vacuum; Cryocooling 40K for grazing incidence samples Tilt range +/- 0.5 degrees Wedges available on request to match Bragg angle. No cryocooling with wedges
General Users	Tilt platform 0-15 degrees (wedges available on request), air, +/-20 mm translation range, cryostream for LN2 available (performance untested)
General Users	Life-time measurement by visible fluorescence detection following X-ray excitation

### FinEstBeAMS

Available for	Techniques
General Users	Gas Phase end station: - High-resolution photoelectron and Auger electron spectroscopy of gaseous samples - Ion time-of-flight mass spectrometry of gaseous samples - X-ray absorption of gaseous samples, measured in total ion yield mode - Photoelectron-photoion coincidence (PEPICO) spectroscopy of gaseous samples - Negative-ion/positive-ion coincidence (NIPICO) spectroscopy of gaseous samples

## FinEstBeAMS

Available for	Techniques
General Users	Photoluminescence end station: - Photoluminescence emission spectroscopy at fixed excitation energies in wavelength range 200 nm-1.1 $\mu\text{m}$ - Photoluminescence excitation spectroscopy at fixed emission wavelengths in photon energy range 4.55-1300 eV - Time-resolved photoluminescence spectroscopy - Temperature dependencies of luminescence properties of solid materials in the temperature range from 10 to 350 K
General Users	Solid State end station: - NEXAFS, measurement temperature from 100 K (LN2 cooling) to 600 K (resistive heating) - X-ray/UV photoelectron spectroscopy (XPS/UPS), measurement temperature from 100 K (LN2 cooling) to 600 K (resistive heating) - ARPES, measurement temperature from 100 K (LN2 cooling) to 600 K (resistive heating)

## FlexPES

Available for	Techniques
General Users	Beamline: Linear horizontally polarized light from LPU, with energy range 40-1500 eV, spot on sample both defocused (0.5-1.5 mm) and focused (from 50x15 $\mu\text{m}$ to 150x40 $\mu\text{m}$ in different end stations)
General Users	Surface- and Material Science (SMS) branch: High-resolution PES) on solid samples using DA30-L(W) analyzer and 4-axis manipulator; XAS or NEXAFS using total electron yield, partial electron yield and partial fluorescence yield (SDD detector)
General Users	Low Density Matter (LDM) branch: High-resolution PES on LDM samples using R4000 analyzer with the following sample delivery systems (samples must be approved by chemical safety group): - Liquid jet setup for e.g. aqueous solutions - Molecular jet source (continuous beam) for experiments on cold beams of atomic and molecular gases - Gas cell for PES experiments on atomic and molecular gases - Magnetron-based source for metal particle beams
Expert Users	Low Density Matter (LDM) branch: COLTRIMS/Multi-coincidence spectroscopy in expert commissioning mode (ICE end station); to be used with molecular jet/cluster source

## ForMAX

Available for	Techniques
Expert Users	Small- and/or wide-angle x-ray scattering (SWAXS) (Q3 2022)
Expert Users	Scanning SWAXS imaging (Q3 2022)
General Users	Small- and/or wide-angle x-ray scattering (SWAXS) (Q1 2023)
General Users	Scanning SWAXS imaging (Q1 2023)

## HIPPIE

Available for	Techniques
General Users	Catalysis Cell: APXPS of solid-gas interfaces up to 10 mbar, for catalysis and surface science
General Users	PM-IRRAS: APXPS and FTIR on the same spot up to 1 mbar for catalysis and surface science
General Users	Liquid/electrochemistry cell: APXPS of solid-liquid (dip-and-pull setup) and gas-liquid (liquid jet setup) interfaces up to 30 mbar for electrochemistry, energy, environmental, and atmospheric science
Expert Users	HIPPIE B branch (Q4 2023)
General Users	HIPPIE B branch (Q1 2024)

## MAXPEEM

Available for	Techniques
General Users	SPELEEM in the soft X-ray range

## MicroMAX

Available for	Techniques
Expert Users	Fixed target serial crystallography (Q4 2022)
General Users	Fixed target serial crystallography (Q2 2023)

## NanoMAX

Available for	Techniques
General Users	Scanning X-ray diffraction and coherent imaging in Bragg geometry
General Users	Forward ptychography and CDI



### NanoMAX

Available for	Techniques
General Users	X-ray fluorescence mapping in 2D
General Users	Forward ptycho-tomography (under development, not all samples are suitable)
Expert Users	Zone plate based high-resolution imaging in 2D or 3D
General Users	Zone plate based high-resolution imaging in 2D or 3D (Q4 2022)

### SoftiMAX

Available for	Techniques
General Users	STXM of thin samples, mounted on Si <sub>3</sub> N <sub>4</sub> windows or TEM grids, at absorption edges between photon energies 275 eV and 1600 eV, with spatial resolution between 20-60 nm, depending on energy range and requirements

### SPECIES

Available for	Techniques
General Users	Standard cell: APXPS up to 20 mbar for catalysis, oxidation studies, and surface science
General Users	ALD cell: APXPS for in-situ ALD experiments up to 20 mbar
General Users	RIXS using GRACE spectrometer (emission energy range 50-650 eV, only linear polarization horizontally and vertically), solid samples only, LN <sub>2</sub> -sample cooling available, 4-axis manipulator

### Veritas

Available for	Techniques
General Users	A branch: (Mid-range performance RIXS, solid samples, LN <sub>2</sub> cooled samples, linear polarization (horizontal and vertical), XAS (MCP and photo diode)), sample scanning
General Users	B branch: (Open port)

## **Status of Beamlines at MAX IV**

### **Appendix 2**

#### **2021 Publications**

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*Balder	Thrane Joachim, Elvebakken Christopher Falholt, Juelsholt Mikkel, Christiansen Troels Lindahl, Jensen Kirsten M. O., Hansen Lars Pilsgaard, Lundegaard Lars Fahl, Mentzel Uffe Vie, Thorhauge Max, Jensen Anker Degn, Hoj Martin	Highly Stable Apatite Supported Molybdenum Oxide Catalysts for Selective Oxidation of Methanol to Formaldehyde: Structure, Activity and Stability	CHEMCATCHEM	<a href="https://doi.org/10.1002/cctc.202101220">10.1002/cctc.202101220</a>
Balder	Sjöberg S, Yu C, Stairs CW, Allard B, Hallberg R, Henriksson S, Åström M, Dupraz C	Microbe-mediated Mn oxidation - a proposed model of mineral formation	MINERALS	<a href="https://doi.org/10.1002/cctc.202101220">0.1002/cctc.202101220</a>
Balder	Micheal Raj P, Barbe L, Andersson M, Moreira M, Haase D, Wootton J, Nehzati S, Terry A, Friel R, Tenje M, Sigfridsson Clauss K	Fabrication and Characterisation of a Silicon-Borosilicate Glass Microfluidic Device for Synchrotron-based Hard X-ray Spectroscopy Studies	RSC ADVANCES	<a href="https://doi.org/10.1039/D1RA05270E">10.1039/D1RA05270E</a>
Balder	Konieczna Hanna, Lundberg Daniel, Persson Ingmar	Solvation and coordination chemistry of manganese(II) in some solvents. A transfer thermodynamic, complex formation, EXAFS spectroscopic and crystallographic study	POLYHEDRON	<a href="https://doi.org/10.1016/j.poly.2020.114961">10.1016/j.poly.2020.114961</a>
Balder	Bocharov D, Pudza I, Klementiev K, Krack M, Kuzmin A	Study of high-temperature behaviour of ZnO by ab initio molecular dynamics simulations and X-ray absorption spectroscopy	MATERIALS	<a href="https://doi.org/10.3390/ma14185206">10.3390/ma14185206</a>
*Balder	Shu Rui, Lundin Daniel, Xin Binbin, Sortica Mauricio A., Primetzhofer Daniel, Magnuson Martin, le Febvrier Arnaud, Eklund Per	Influence of Metal Substitution and Ion Energy on Microstructure Evolution of High-Entropy Nitride (TiZrTaMe)N <sub>1-x</sub> (Me = Hf, Nb, Mo, or Cr) Films	ACS APPLIED ELECTRONIC MATERIALS	<a href="https://doi.org/10.1021/acsaem.1c00311">10.1021/acsaem.1c00311</a>
*Balder	Li Jinzhao, Dagar Janardan, Shargaieva Oleksandra, Flatken Marion A, Kobler Hans, Fenske Markus, Schultz Christof, Stegemann Bert, Just Justus, Tobbens Daniel M., Abate Antonio, Munir Rahim, Unger Eva	20.8% Slot-Die Coated MAPbI <sub>3</sub> Perovskite Solar Cells by Optimal DMSO-Content and Age of 2-ME Based Precursor Inks	ADVANCED ENERGY MATERIALS	<a href="https://doi.org/10.1002/aenm.202003460">10.1002/aenm.202003460</a>
*Balder	Lu Changyong, Klementiev Konstantin, Hassenkam Tue, Qian Wenjie, Ai Jing, Hansen Hans Chr. Bruun	High affinity lanthanum doped iron oxide nanosheets for phosphate removal	CHEMICAL ENGINEERING JOURNAL	<a href="https://doi.org/10.1016/j.cej.2021.130009">10.1016/j.cej.2021.130009</a>
Balder	Dalgaard Kirstine Junker, Kevy Simone Munkholm, Wollesen Laura, Ma Qing, Wiedmann Steffen, Clauss Kajsa G V Sigfridsson, Bremholm Martin	Local structure of Nb in superconducting Nb-doped Bi <sub>2</sub> Se <sub>3</sub>	PHYSICAL REVIEW B	<a href="https://doi.org/10.1103/PhysRevB.103.184103">10.1103/PhysRevB.103.184103</a>
*BioMAX	Marcos-Torres FJ, Maurer D, Juniar L, Griesse JJ	The bacterial iron sensor IdeR recognizes its DNA targets by indirect readout	NUCLEIC ACIDS RESEARCH	<a href="https://doi.org/10.1093/nar/gkab711">10.1093/nar/gkab711</a>

\* Publications in journals with impact factor > 5 reported at time of publication

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
BioMAX	Espeland Ludvik Olai, Georgiou Charis, Klein Raphael, Bhukya Hemalatha, Haug Bengt Erik, Underhaug Jarl, Mainkar Prathama S., Brenk Ruth	An Experimental Toolbox for Structure-Based Hit Discovery for P. aeruginosa FabF, a Promising Target for Antibiotics	CHEMMEDCHEM	<a href="https://doi.org/10.1002/cmdc.202100302">10.1002/cmdc.202100302</a>
*BioMAX	Asthana P, Singh D, Pedersen JS, Hynönen MJ, Sulu R, Murthy AV, Laitaoja M, Jänis J, Riley LW, Venkatesana R	Structural insights into the substrate-binding proteins Mce1A and Mce4A from Mycobacterium tuberculosis	IUCRJ	<a href="https://doi.org/10.1107/S2052252521006199">10.1107/S2052252521006199</a>
*BioMAX	Cellini Andrea, Wahlgren Weixiao Yuan, Henry Leocadie, Pandey Suraj, Ghosh Swagatha, Castillon Leticia, Claesson Elin, Takala Heikki, Kubel Joachim, Nimmrich Amke, Kuznetsova Valentyna, Nango Eriko, Iwata So, Owada Shigeki, Stojkovic Emina A., Schmidt Marius, Ihalainen Janne A., Westenhoff Sebastian	The three-dimensional structure of Drosophila melanogaster (6-4) photolyase at room temperature	ACTA CRYSTALLOGRAPHICA SECTION D	<a href="https://doi.org/10.1107/S2059798321005830">10.1107/S2059798321005830</a>
*BioMAX	Kelpas Vinardas, Caldararu Octav, Blakeley Matthew P., Coquelle Nicolas, Wierenga Rikkert K., Ryde Ulf, von Wachenfeldt Claes, Oksanen Esko	Neutron structures of Leishmania mexicana triosephosphate isomerase in complex with reaction-intermediate mimics shed light on the proton-shuttling steps	IUCRJ	<a href="https://doi.org/10.1107/S2052252521004619">10.1107/S2052252521004619</a>
*BioMAX	Mazurkewich Scott, Seveso Andrea, Huttner Silvia, Branden Gisela, Larsbrink Johan	Structure of a C1/C4-oxidizing AA9 lytic polysaccharide monooxygenase from the thermophilic fungus Malbranchea cinnamomea	ACTA CRYSTALLOGRAPHICA SECTION D	<a href="https://doi.org/10.1107/S2059798321006628">10.1107/S2059798321006628</a>
*BioMAX	Cassidy Andrew, Jorgensen Mads R. V, Glavic Artur, Lauter Valeria, Plekan Oksana, Field David	A mechanism for ageing in a deeply supercooled molecular glass	CHEMICAL COMMUNICATIONS	<a href="https://doi.org/10.1039/d1cc01639c">10.1039/d1cc01639c</a>
*BioMAX	Zhang SM, Rehling D, Jemth A-S, Throup A, Landazuri N, Almlof I, Goettmann M, Valerie NCK, Borhade SR, Wakchaure P, Page BDG, Desroses M, Homan EJ, Scobie M, Rudd SG, Warpman Berglund U, Soderberg-Naucleer C, Stenmark P, Helleday T	NUDT15-mediated hydrolysis limits the efficacy of anti-HCMV drug ganciclovir	CELL CHEMICAL BIOLOGY	<a href="https://doi.org/10.1016/j.chembiol.2021.06.001">doi: 10.1016/j.chembiol.2021.06.001</a>
*BioMAX	Koruzs K, Murray AB, Mahon BP, Hopkins JB, Knecht W, McKenna R, Fisher SZ	Biophysical Characterization of Cancer-Related Carbonic Anhydrase IX	INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES	<a href="https://doi.org/10.3390/ijms21155277">10.3390/ijms21155277</a>
BioMAX	Krska D, Mazurkewich S, Brown HA, Theibich Y, Poulsen JN, Morris AL, Koropatkin NM, Lo Leggio L, Larsbrink J	Structural and Functional Analysis of a Multimodular Hyperthermostable Xylanase-Glucuronoyl Esterase from Caldicellulosiruptor kristjansonii .	BIOCHEMISTRY	<a href="https://doi.org/10.1021/acs.biochem.1c00305">doi: 10.1021/acs.biochem.1c00305</a>

\* Publications in journals with impact factor > 5 reported at time of publication

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*BioMAX	Lima GMA, Jagudin E, Talibov VO, Benz LS, Marullo C, Barthel T, Wollenhaupt J, Weiss MS, Mueller U	FragMAXapp: crystallographic fragment-screening data-analysis and project-management system	ACTA CRYSTALLOGRAPHICA SECTION D	<a href="https://doi.org/10.1107/S2059798321003818">10.1107/S2059798321003818</a>
BioMAX	Fitzgerald EA, Butko MT, Boronat P, Cederfelt D, Abramsson M, Ludviksdottir H, van Muijlwijk-Koezen J, de Esch IJP, Dobritsch D, Young T, Danielson UH	Discovery of fragments inducing conformational effects in dynamic proteins using a second-harmonic generation biosensor	RSC ADVANCES	
*BioMAX	Ramos J, Lau V, Haertlein M, Erba EB, Mcauley KE, Forsyth VT, Mossou E, Larsen S, Langkilde AE	Structural insights into protein folding, stability and activity using in vivo perdeuteration of hen egg-white lysozyme	IUCRJ	<a href="https://doi.org/10.1107/S2052252521001299">10.1107/S2052252521001299</a>
*BioMAX	Haddad Momeni M, Fredslund F, Bissaro B, Raji O, Vuong TV, Meier S, Nielsen TS, Lombard V, Guigliarelli B, Biaso F, Haon M, Grisel S, Henrissat B, Welner DH, Master ER, Berrin JG, Abou Hachem M	Discovery of fungal oligosaccharide-oxidising flavo-enzymes with previously unknown substrates, redox-activity profiles and interplay with LPMOs.	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-22372-0">10.1038/s41467-021-22372-0</a>
*BioMAX	Sprenger J, Carey J, Schulz A, Drouard F, L Lawson C, von Wachenfeldt C, Linse S, Lo Leggio L	Guest-protein incorporation into solvent channels of a protein host crystal (hostal)	ACTA CRYSTALLOGRAPHICA SECTION D	<a href="https://doi.org/10.1107/S2059798321001078">10.1107/S2059798321001078</a>
*BioMAX	Schriever K, Saenz-Mendez P, Rudraraja RS, Hendrikse NM, Hudson EP, Biundo A, Schnell R, Syren PO	Engineering of Ancestors as a Tool to Elucidate Structure, Mechanism, and Specificity of Extant Terpene Cyclase.	JOURNAL OF THE AMERICAN CHEMICAL SOCIETY	<a href="https://doi.org/10.1021/jacs.0c10214">10.1021/jacs.0c10214</a>
*BioMAX	Martelli G, Pessatti TB, Steiner EM, Cirillo M, Caso C, Bisognin F, Landreh M, Monte PD, Giacomini D, Schnell R	N-Thio-beta-lactams targeting L,D-transpeptidase-2, with activity against drug-resistant strains of Mycobacterium tuberculosis.	CELL CHEMICAL BIOLOGY	<a href="https://doi.org/10.1016/j.chembiol.2021.03.008">10.1016/j.chembiol.2021.03.008</a>
*BioMAX	Pallesen JS, Narayanan D, Tran KT, Solbak SM, Marseglia G, Sørensen LME, Høj LJ, Munafò F, Carmona RMC, Garcia AD, Desu HL, Brambilla R, Johansen TN, Popowicz GM, Sattler M, Gajhede M, Bach A	Deconstructing Noncovalent Kelch-like ECH-Associated Protein 1 (Keap1) Inhibitors into Fragments to Reconstruct New Potent Compounds.	JOURNAL OF MEDICINAL CHEMISTRY	<a href="https://doi.org/10.1021/acs.jmedchem.0c02094">10.1021/acs.jmedchem.0c02094</a>
*BioMAX	Rehling D, Zhang SM, Jemth AS, Koolmeister T, Throup A, Wallner O, Scaletti E, Moriyama T, Nishii R, Davies J, Desroses M, Rudd SG, Scobie M, Homan E, Berglund UW, Yang JJ, Helleday T, Stenmark P	Crystal structures of NUDT15 variants enabled by a potent inhibitor reveal the structural basis for thiopurine sensitivity.	JOURNAL OF BIOLOGICAL CHEMISTRY	<a href="https://doi.org/10.1016/j.jbc.2021.100568">10.1016/j.jbc.2021.100568</a>

\* Publications in journals with impact factor > 5 reported at time of publication

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
BioMAX	Fragment-Based Discovery of Novel Allosteric MEK1 Binders	Fragment-Based Discovery of Novel Allosteric MEK1 Binders	ACS MEDICINAL CHEMISTRY LETTERS	<a href="https://doi.org/10.1021/acsmmedchemlett.0c00563">10.1021/acsmmedchemlett.0c00563</a>
BioMAX	Knezic C, Mazurkewich S, Meents T, McKee L, Idstrom A, Armeni M, Savolainen O, Branden G, Larsbrink J	polysaccharide utilization locus from the gut bacterium <i>Dysgonomonas mossii</i> encodes functionally distinct carbohydrate esterases.	JOURNAL OF BIOLOGICAL CHEMISTRY	<a href="https://doi.org/10.1016/j.jbc.2021.100500">10.1016/j.jbc.2021.100500</a>
BioMAX	Heidler Thomas V., Ernits Karin, Ziolkowska Agnieszka, Claesson Rolf, Persson Karina	<i>Porphyromonas gingivalis</i> fimbrial protein Mfa5 contains a von Willebrand factor domain and an intramolecular iso peptide	COMMUNICATIONS BIOLOGY	<a href="https://doi.org/10.1038/s42003-020-01621-w">10.1038/s42003-020-01621-w</a>
BioMAX	Kalyani DC, Reichenbach T, Aspeborg H, Divne C	A homodimeric bacterial exo-beta-1,3-glucanase derived from moose rumen microbiome shows a structural framework similar to yeast exo-beta-1,3-glucanases.	ENZYME AND MICROBIAL TECHNOLOGY	<a href="https://doi.org/10.1016/j.enzmictec.2020.109723">10.1016/j.enzmictec.2020.109723</a>
BioMAX	Talibov VO, Fabini E, Fitzgerald E, Tedesco D, Eriksson D, Talu MJ, Rachman MM, Mihalic F, Manoni E, Naldi M, Sanese P, Forte G, Signorile ML, Barril X, Simone C, Bartolini M, Dobritzsch D, Rio AD, Danielson UH	Discovery of an allosteric ligand binding site in SMYD3 lysine methyltransferase	CHEMBIOCHEM	<a href="https://doi.org/10.1002/cbic.202000736">10.1002/cbic.202000736</a>
*BioMAX	Hasan M, Khakzad H, Happonen L, Sundin A, Unge J, Mueller U, Malmström J, Westergren-Thorsson G, Malmström L, Ellervik U, Malmström A, Tykesson E	The structure of human dermatan sulfate epimerase 1 emphasizes the importance of C5-epimerization of glucuronic acid in higher organisms	CHEMICAL SCIENCE	<a href="https://doi.org/10.1039/D0SC05971D">10.1039/D0SC05971D</a>
BioMAX	Vella Peter, Rudraraju Reshma Srilakshmi, Lundback Thomas, Axelsson Hanna, Almqvist Helena, Vallin Michaela, Schneider Gunter, Schnell Robert	A FabG inhibitor targeting an allosteric binding site inhibits several orthologs from Gram-negative ESKAPE pathogens	BIOORGANIC & MEDICINAL CHEMISTRY	<a href="https://doi.org/10.1016/j.bmc.2020.115898">10.1016/j.bmc.2020.115898</a>
*Bloch	Mende M, Ali K, Poelchen G, Schulz S, Mandic V, V Tarasov A, Polley C, Generalov A, V Fedorov A, Güttler M, Laubschat C, Kliemt K, M Koroteev Y, V Chulkov E, Kummer K, Krellner C, Yu Usachov D, V Vyalikh D	Strong Rashba Effect and Different f–d Hybridization Phenomena at the Surface of the Heavy-Fermion Superconductor CeIrIn5	ADVANCED ELECTRONIC MATERIALS	<a href="https://doi.org/10.1002/aelm.202100768">10.1002/aelm.202100768</a>
*Bloch	V Fedorov A, Poelchen G, V Ereemeev S, Schulz S, Generalov A, Polley C, Laubschat C, Kliemt K, Kaya N, Krellner C, V Chulkov E, Kummer K, Yu Usachov D, Ernst A, V Vyalikh D	Insight into the Temperature Evolution of Electronic Structure and Mechanism of Exchange Interaction in EuS	JOURNAL OF PHYSICAL CHEMISTRY LETTERS	

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*Bloch	Wu Zhongzheng, Fang Yuan, Su Hang, Xie Wu, Li Peng, Wu Yi, Huang Yaobo, Shen Dawei, Thiagarajan Balasubramanian, Adell Johan, Cao Chao, Yuan Huiqiu, Steglich Frank, Liu Yang	Revealing the Heavy Quasiparticles in the Heavy-Fermion Superconductor CeCu <sub>2</sub> Si <sub>2</sub>	PHYSICAL REVIEW LETTERS	<a href="https://doi.org/10.1103/PhysRevLett.127.067002">10.1103/PhysRevLett.127.067002</a>
Bloch I4	Shah J, Wang W, Sohail H, Uhrberg R	Atomic and electronic structures of the Au <sub>2</sub> Sn surface alloy on Au(111)	PHYSICAL REVIEW B	<a href="https://doi.org/10.1103/PhysRevB.104.125408">10.1103/PhysRevB.104.125408</a>
Bloch	Yi HEMIAN, Huang ZENGLE, Shi WUJUN, Min LUJIN, Wu RUI, POLLEY C, Zhang RUOXI, Zhao YI-FAN, Zhou LING-JIE, Adell J, Gui XIN, Xie WEIWEI, Chan MOSES H W, Mao ZHIQIANG, Wang ZHIJUN, Wu WEIDA, Chang CUI-ZU	Surface charge induced Dirac band splitting in a charge density wave material (TaSe <sub>4</sub> ) <sub>2</sub> I	PHYSICAL REVIEW RESEARCH	
Bloch	Schulz S, Vyazovskaya A Yu, Poelchen G, Generalov A, Güttler M, Mende M, Danzenbächer S, Otrokov MM, Balasubramanian T, Polley C, Chulkov EV, Laubschat C, Peters M, Kliemt K, Krellner C, Usachov D Yu, Vyalikh DV	Classical and cubic Rashba effect in the presence of in-plane 4f magnetism at the iridium silicide surface of the antiferromagnet GdIr <sub>2</sub> Si <sub>2</sub>	PHYSICAL REVIEW B	<a href="https://doi.org/10.1103/PhysRevB.103.035123">10.1103/PhysRevB.103.035123</a>
CoSAXS	Kahnt M, Klementiev K, Haghighat V, Weninger C, Plivelic TS, Terry AE, Björling A	Measurement of the coherent beam properties at the CoSAXS beamline	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521009140">10.1107/S1600577521009140</a>
*DanMAX	Juelsholt Mikkel, Anker Andy S., Christiansen Troels Lindahl, Jorgensen Mads Ry Vogel, Kantor Innokenty, Sorensen Daniel Risskov, Jensen Kirsten M. O.	Size-induced amorphous structure in tungsten oxide nanoparticles	NANOSCALE	<a href="https://doi.org/10.1039/d1nr05991b">10.1039/d1nr05991b</a>
FemtoMAX BioMAX	Jensen M, Ahlberg Gagner V, Cabello Sanchez J, Bengtsson A U J, Ekstrom J C, Bjorg Ulfarsdottir T, Garcia-Bonete M J, Jurgilaitis A, Kroon D, Pham V T, Checcia S, Coudert-Alteirac H, Schewa S, Rossle M, Rodilla H, Stake J, Zhaunerchyk V, Larsson J, Katona G	High-resolution macromolecular crystallography at the FemtoMAX beamline with time-over-threshold photon detection	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577520014599">10.1107/S1600577520014599</a>
FinEstBeAMS	Trofimova Elena, Omelkov Sergey, Romet Ivo, Kirm Marco, Pustovarov Vladimir, Piccinelli Fabio	Luminescence properties and energy transfer processes in LiSrPO <sub>4</sub> doped with Pr <sup>3+</sup> and co-doped with Na <sup>+</sup> and Mg <sup>2+</sup>	JOURNAL OF LUMINESCENCE	<a href="https://doi.org/10.1016/j.jlumin.2021.118455">10.1016/j.jlumin.2021.118455</a>

\* Publications in journals with impact factor > 5 reported at time of publication

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
FinEstBeAMS	Kuusik Ivar, Kook Mati, Parna Rainer, Kisand Vambola	Ionic Liquid Vapors in Vacuum: Possibility to Derive Anodic Stabilities from DFT and UPS	ACS OMEGA	<a href="https://doi.org/10.1021/acsomega.0c05369">10.1021/acsomega.0c05369</a>
FinEstBeAMS	Kruusma J, Tõnisoo A, Pärna R, Thomberg T, Kook M, Romann T, Kisand V, Lust E	The Electrochemical Behaviour of Quaternary Amine-Based Room-Temperature Ionic Liquid N4111(TFSI)	CATALYSTS	<a href="https://doi.org/10.3390/catal11111315">10.3390/catal11111315</a>
FinEstBeAMS	Saaring Juhan, Vanetsev Alexander, Chernenko Kirill, Feldbach Eduard, Kudryavtseva Irina, Mandar Hugo, Parna Rainer, Nagirnyi Vitali, Omelkov Sergey, Romet Ivo, Rebane Ott, Kirm Marco	Relaxation of electronic excitations in K2GeF6 studied by means of time-resolved luminescence spectroscopy under VUV and pulsed electron beam excitation	JOURNAL OF ALLOYS AND COMPOUNDS	<a href="https://doi.org/10.1016/j.jallcom.2021.160916">doi: 10.1016/j.jallcom.2021.160916</a>
FinEstBeAMS	Vanetsev Alexander, Podder Peep, Oja Marek, Khaidukov Nicholas M., Makhov Vladimir N., Nagirnyi Vitali, Romet Ivo, Vielhauer Sebastian, Mandar Hugo, Kirm Marco	Microwave-hydrothermal synthesis and investigation of Mn-doped K2SiF6 microsize powder as a red phosphor for warm white LEDs	JOURNAL OF LUMINESCENCE	<a href="https://doi.org/10.1016/j.jlumin.2021.118389">doi: 10.1016/j.jlumin.2021.118389</a>
FinEstBeAMS	Pihlava L, Niskanen J, Kooser K, Stråhlman C, Maclot S, Kivimäki A, Kuk E	Photodissociation dynamics of halogenated aromatic molecules: the case of core-ionized tetrabromothiophene	PHYSICAL CHEMISTRY CHEMICAL PHYSICS	<a href="https://doi.org/10.1039/D1CP03097C">doi: 10.1039/D1CP03097C</a>
FinEstBeAM	Patanen M, Abid A, Pratt S, Kivimäki A, Trofimov A, Skitnevskaya A, Grigoricheva E, Gromov E, Powis I, Holland D	Valence shell photoelectron angular distributions and vibrationally resolved spectra of imidazole: A combined experimental-theoretical study	JOURNAL OF CHEMICAL PHYSICS	<a href="https://doi.org/10.1063/5.0058983">10.1063/5.0058983</a>
FinEstBeAMS	Kruusma J, Tõnisoo A, Pärna R, Thomberg T, Kook M, Romann T, Kisand V, Lust E	The electrochemical behaviour of protic quaternary amine based room-temperature ionic liquid N2210(OTf) at negatively and positively polarized micro-mesoporous carbon electrode investigated by in situ X-ray photoelectron spectroscopy, in situ mass-spectroscopy, cyclic voltammetry and electrochemical impedance spectroscopy methods	JOURNAL OF ELECTROANALYTICAL CHEMISTRY	<a href="https://doi.org/10.1016/j.jelechem.2021.115561">10.1016/j.jelechem.2021.115561</a>
FinEstBeAMS Balder	Khanin Vasilii, Venevtsev Ivan, Chernenko Kirill, Pankratov Vladimir, Klementiev Konstantin, van Swieten Thomas, van Bunningen Arnoldus J., Vruble Ivan, Shendrik Roman, Ronda Cees, Rodnyi Piotr, Meijerink Andries	Exciton interaction with Ce3+ and Ce4+ ions in (LuGd)(3)(Ga, Al)(5)O-12 ceramics	JOURNAL OF LUMINESCENCE	<a href="https://doi.org/10.1016/j.jlumin.2021.118150">10.1016/j.jlumin.2021.118150</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
FinEstBeAMS	Chernenko K, Kivimäki A, Pärna R, Wang W, Sankari R, Leandersson M, Tarawneh H, Pankratov V, Kook M, Kuk E, Reisberg L, Urpelainen S, Käämbre T, Siewert F, Gwalt G, Sokolov A, Lemke S, Alimov S, Knedel J, Kutz O, Seliger T, Valden M, Hirsimäki M, Kirm M, Huttula M	Performance and characterization of the FinEstBeAMS beamline at the MAX IV Laboratory	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521006032">10.1107/S1600577521006032</a>
FinEstBeAMS	Gundacker S, Pots R H, Nepomnyashchikh A, Radzhabov E, Shendrik R, Omelkov S, Kirm M, Acerbi F, Capasso M, Paternoster G, Mazzi A, Gola A, Chen J, Auffray E	Vacuum ultraviolet silicon photomultipliers applied to BaF2 cross-luminescence detection for high-rate ultrafast timing applications	PHYSICS IN MEDICINE AND BIOLOGY	<a href="https://doi.org/10.1088/1361-6560/abf476">10.1088/1361-6560/abf476</a>
FinEstBeAMS	Pelimanni E, Hautala L, Hans A, Kivimäki A, Kook M, Küstner-Wetekam C, Marder L, Patanen M, Huttula M	Core and Valence Level Photoelectron Spectroscopy of Nanosolvated KCl	JOURNAL OF PHYSICAL CHEMISTRY A	<a href="https://doi.org/10.1021/acs.jpca.1c01539">10.1021/acs.jpca.1c01539</a>
FlexPES	Larsson A, D'acunto G, Vorobyova M, Abbondanza G, Lienert U, Hegedüs Z, Preobrajenski A, Merte LR, Eidhagen J, Delblanc A, Pan J, Lundgren E	Thickness and composition of native oxides and near-surface regions of Ni superalloys	JOURNAL OF ALLOYS AND COMPOUNDS	<a href="https://doi.org/10.1016/j.jallcom.2021.162657">10.1016/j.jallcom.2021.162657</a>
*FlexPES STM-Laboratory	Appelfeller Stephan	Investigation of single-domain Au silicide nanowires on Si(110) formed for Au coverages in the monolayer regime	SCIENTIFIC REPORTS	<a href="https://doi.org/10.1038/s41598-021-94106-7">10.1038/s41598-021-94106-7</a>
FlexPES I1011 I411	Kirschner Johannes, Gomes Anderson H. A., Marinho Ricardo R. T., Bjorneholm Olle, Agren Hans, Carravetta Vincenzo, Ottosson Niklas, Brito Arnaldo Naves de, Bakker Huib J.	The molecular structure of the surface of water-ethanol mixtures	PHYSICAL CHEMISTRY CHEMICAL PHYSICS	<a href="https://doi.org/10.1039/d0cp06387h">10.1039/d0cp06387h</a>
*FlexPES	Chen Y, Liu X, Braun S, Fahlman M	Understanding Interface Dipoles at an Electron Transport Material/Electrode Modifier for Organic Electronics	ACS APPLIED MATERIALS & INTERFACES	<a href="https://doi.org/10.1021/acsami.1c13172">10.1021/acsami.1c13172</a>
*FlexPES SPECIES	Yang Chi-Yuan, Stoeckel Marc-Antoine, Ruoko Tero-Petri, Wu Han-Yan, Liu Xianjie, Kolhe Nagesh B., Wu Ziang, Puttisong Yuttapoom, Musumeci Chiara, Massetti Matteo, Sun Hengda, Xu Kai, Tu Deyu, Chen Weimin M., Woo Han Young, Fahlman Mats, Jenekhe Samson A., Berggren Magnus, Fabiano Simone	A high-conductivity n-type polymeric ink for printed electronics	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-22528-y">10.1038/s41467-021-22528-y</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*FlexPES STM-Laboratory	Preobrajenski AB, Lyalin A, Taketsugu T, Vinogradov NA, Vinogradov AS	Honeycomb Boron on Al(111): From the Concept of Borophene to the Two-Dimensional Boride	ACS NANO	<a href="https://doi.org/10.1021/acsnano.1c05603">10.1021/acsnano.1c05603</a>
FlexPES	Temperton R, Hart J, Verykokkos N, Gibson E, OShea J	A soft x-ray probe of a titania photoelectrode sensitized with a triphenylamine dye	JOURNAL OF CHEMICAL PHYSICS	<a href="https://doi.org/10.1063/5.0050531">10.1063/5.0050531</a>
FlexPES	Sterling Cody M., Kamal Chinnathambi, Man Gabriel J., Nayak Pabitra K., Simonov Konstantin A., Svanstrom Sebastian, Garcia-Fernandez Alberto, Huthwelker Thomas, Cappel Ute B., Butorin Sergei M., Rensmo Hakan, Odelius Michael	Sensitivity of Nitrogen K-Edge X-ray Absorption to Halide Substitution and Thermal Fluctuations in Methylammonium Lead-Halide Perovskites	JOURNAL OF PHYSICAL CHEMISTRY C	<a href="https://doi.org/10.1021/acs.jpcc.1c02017">10.1021/acs.jpcc.1c02017</a>
*FlexPES	Athle R, Persson AEO, Irish A, Menon H, Timm R, Borg M	Effects of TiN Top Electrode Texturing on Ferroelectricity in Hf1-xZrxO2	ACS APPLIED MATERIALS & INTERFACES	<a href="https://doi.org/10.1021/acsnano.1c01734">10.1021/acsnano.1c01734</a>
FlexPES	Abid AR, Reinhardt M, Boudjemia N, Pelimanni E, Milosavljevic AR, Saak CM, Huttula M, Björneholm O, Patanen M	The effect of relative humidity on CaCl2 nanoparticles studied by soft X-ray absorption spectroscopy	RSC ADVANCES	<a href="https://doi.org/10.1039/d0ra08943e">10.1039/d0ra08943e</a>
*HIPPIE	Knudsen Jan, Gallo Tamires, Boix Virginia, Stromsheim Marie Dovre, D'Acunto Giulio, Goodwin Christopher, Wallander Harald, Zhu Suyun, Soldemo Markus, Lomker Patrick, Cavalca Filippo, Scardamaglia Mattia, Degerman David, Nilsson Anders, Amann Peter, Shavorskiy Andrey, Schnadt Joachim	Stroboscopic operando spectroscopy of the dynamics in heterogeneous catalysis by event-averaging	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-26372-y">10.1038/s41467-021-26372-y</a>
*HIPPIE	Shavorskiy Andrey, D'Acunto Giulio, de la Cruz Virginia Boix, Scardamaglia Mattia, Zhu Suyun, Temperton Robert H., Schnadt Joachim, Knudsen Jan	Gas Pulse-X-Ray Probe Ambient Pressure Photoelectron Spectroscopy with Submillisecond Time Resolution	ACS APPLIED MATERIALS & INTERFACES	<a href="https://doi.org/10.1021/acsnano.1c13590">10.1021/acsnano.1c13590</a>
*HIPPIE	Ivashenko Oleksii, Johansson Niclas, Pettersen Christine, Jensen Martin, Zheng Jian, Schnadt Joachim, Sjaastad Anja O.	How Surface Species Drive Product Distribution during Ammonia Oxidation: An STM and Operando APXPS Study	ACS CATALYSIS	<a href="https://doi.org/10.1021/acscatal.1c00956">10.1021/acscatal.1c00956</a>
*HIPPIE	Kallquist Ida, Lindgren Fredrik, Lee Ming-Tao, Shavorskiy Andrey, Edstrom Kristina, Rensmo Hakan, Nyholm Leif, Maibach Julia, Hahlin Maria	<i>Probing Electrochemical Potential Differences over the Solid/Liquid Interface in Li-Ion Battery Model Systems</i>	ACS APPLIED MATERIALS & INTERFACES	<a href="https://doi.org/10.1002/aenm.202003460">10.1002/aenm.202003460</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*HIPPIE	Ivashenko O, Johansson N, Pettersen C, Jensen M, Zheng J, Schnadt J, Sjöstad AO	How Surface Species Drive Product Distribution during Ammonia Oxidation: An STM and Operando APXPS Study	ACS CATALYSIS	<a href="https://doi.org/10.1021/acscatal.1c00956">10.1021/acscatal.1c00956</a>
*HIPPIE	Wang C, Tissot H, Soldemo M, Lu J, Weissenrieder J	Inverse single-site Fe1(OH)X/Pt(111) model catalyst for preferential oxidation of CO in H <sub>2</sub>	NANO RESEARCH	<a href="https://doi.org/10.1007/s12274-021-3551-4">10.1007/s12274-021-3551-4</a>
*HIPPIE	Stromsheim MD, Svenum IH, Mahmoodinia M, Boix V, Knudsen J, Venvik HJ	Segregation dynamics of a Pd-Ag surface during CO oxidation investigated by NAP-XPS	CATALYSIS TODAY	<a href="https://doi.org/10.1016/j.cattod.2021.02.007">10.1016/j.cattod.2021.02.007</a>
HIPPIE	Zhu Suyun, Scardamaglia Mattia, Kundsén Jan, Sankari Rami, Tarawneh Hamed, Temperton Robert, Pickworth Louisa, Cavalca Filippo, Wang Chunlei, Tissot Heloise, Weissenrieder Jonas, Hagman Benjamin, Gustafson Johan, Kaya Sarp, Lindgren Fredrik, Kallquist Ida, Maibach Julia, Hahlin Maria, Boix Virginia, Gallo Tamires, Rehman Foqia, D'Acunto Giulio, Schnadt Joachim, Shavorskiy Andrey	HIPPIE: a new platform for ambient-pressure X-ray photoelectron spectroscopy at the MAX IV Laboratory	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S160057752100103X">10.1107/S160057752100103X</a>
*HIPPIE	Persson N, Ram MS, D'acunto G, Liu Y, Benter S, Pan J, Li Z, Borg M, Mikkelsen A, Wernersson LE, Timm R	Tuning oxygen vacancies and resistive switching properties in ultra-thin HfO <sub>2</sub> RRAM via TiN bottom electrode and interface engineering	APPLIED SURFACE SCIENCE	<a href="https://doi.org/10.1016/j.apsusc.2021.149386">10.1016/j.apsusc.2021.149386</a>
*HIPPIE	Divins NJ, Kordus D, Timoshenko J, Sinev I, Zegkinoglou I, Bergmann A, Chee SW, Widrinna S, Karslioglu O, Mistry H, Luna ML, Zhong JQ, Hoffman AS, Boubnov A, Boscoboinik JA, Heggen M, Dunin-Borkowski RE, Bare SR, Cuenya BR	Operando high-pressure investigation of size-controlled CuZn catalysts for the methanol synthesis reaction	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-21604-7">10.1038/s41467-021-21604-7</a>
*HIPPIE	Pramhaas Verena, Roiaz Matteo, Bosio Noemi, Corva Manuel, Rameshan Christoph, Vesselli Erik, Gronbeck Henrik, Rupprechter Guenther	Interplay between CO Disproportionation and Oxidation: On the Origin of the CO Reaction Onset on Atomic Layer Deposition-Grown Pt/ZrO <sub>2</sub> Model Catalysts	ACS CATALYSIS	<a href="https://doi.org/10.1021/acscatal.0c03974">10.1021/acscatal.0c03974</a>
*HIPPIE	Scardamaglia M, Boix V, D'acunto G, Struzzi C, Reckinger N, Chen X, Sivayogimath A, Booth T, Knudsen J	Comparative study of copper oxidation protection with graphene and hexagonal boron nitride	CARBON	<a href="https://doi.org/10.1016/j.carbon.2020.09.021">10.1016/j.carbon.2020.09.021</a>
MAXPEEM	Zhu Lin, Al-Sakeeri Ali, Lenrick Filip, Berg Oskar, Darselius, Sjödin Per, Zakharov Alexei A., Knutsson Axel, Mikkelsen Anders	Surface chemistry and diffusion of trace and alloying elements during in vacuum thermal deoxidation of stainless steel	SURFACE AND INTERFACE ANALYSIS	<a href="https://doi.org/10.1002/sia.7024">10.1002/sia.7024</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*MAXPEEM	Bommanaboyena SP, Backes D, Veiga LSI, Dhesi SS, Niu YR, Sarpi B, Denneulin T, Kovács A, Mashoff T, Gomonay O, Sinova J, Everschor-Sitte K, Schönte D, Reeve RM, Kläui M, Elmers H-J, Jourdan M	Readout of an antiferromagnetic spintronics system by strong exchange coupling of Mn <sub>2</sub> Au and Permalloy	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-26892-7">10.1038/s41467-021-26892-7</a>
*MAXPEEM	Wang C, Kuai L, Cao W, Singh H, Zakharov A, Niu Y, Sun H, Geng B	Highly dispersed Cu atoms in MOF-derived N-doped porous carbon inducing Pt loads for superior oxygen reduction and hydrogen evolution	CHEMICAL ENGINEERING JOURNAL	<a href="https://doi.org/10.1016/j.cej.2021.130749">10.1016/j.cej.2021.130749</a>
*MAXPEEM STM-Laboratory	Thi Thuy Nhung Nguyen, de Vries Niels, Karakachian Hrag, Gruschwitz Markus, Aprojanz Johannes, Zakharov Alexei A., Polley Craig, Balasubramanian Thiagarajan, Starke Ulrich, Flipse Cornelis F. J., Tegenkamp Christoph	Topological Surface State in Epitaxial Zigzag Graphene Nanoribbons	NANO LETTERS	<a href="https://doi.org/10.1021/acs.nanolett.0c05013">10.1021/acs.nanolett.0c05013</a>
MAXPEEM	Zakharov A. A.	Ambipolar Behavior of Ge-Intercalated Graphene: Interfacial Dynamics and Possible Applications	FRONTIERS IN PHYSICS	<a href="https://doi.org/10.3389/fphy.2021.641168">10.3389/fphy.2021.641168</a>
*MAXPEEM	Wang C, Kuai L, Cao W, Singh H, Zakharov A, Niu Y, Sun H, Geng B	Highly dispersed Cu atoms in MOF-derived N-doped porous carbon inducing Pt loads for superior oxygen reduction and hydrogen evolution	CHEMICAL ENGINEERING JOURNAL	<a href="https://doi.org/10.1016/j.cej.2021.130749">10.1016/j.cej.2021.130749</a>
*MAXPEEM	Boix Virginia, Struzzi Claudia, Gallo Tamires, Johansson Niclas, D'Acunto Giulio, Yong Zhihua, Zakharov Alexei, Li Zheshen, Schnadt Joachim, Mikkelsen Anders, Knudsen Jan	Area-selective Electron-beam induced deposition of Amorphous-BN <sub>x</sub> on graphene	APPLIED SURFACE SCIENCE	<a href="https://doi.org/10.1016/j.apsusc.2021.149806">10.1016/j.apsusc.2021.149806</a>
*MAXPEEM	Singh Harishchandra, Alatarvas Tuomas, Kistanov Andrey A., Aravindh S. Assa, Wang Shubo, Zhu Lin, Sarpi Brice, Niu Yuran, Zakharov Alexei, de Groot F. M. F., Huttula Marko, Cao Wei, Fabritius Timo	Unveiling interactions of non-metallic inclusions within advanced ultra-high-strength steel: A spectro-microscopic determination and first-principles elucidation	SCRIPTA MATERIALIA	<a href="https://doi.org/10.1016/j.scriptamat.2021.113791">10.1016/j.scriptamat.2021.113791</a>
I311-PEEM MAXPEEM	Stanishev Vallery, Armakavicius Nerijus, Bouhafs Chamseddine, Coletti Camilla, Kuhne Philipp, Ivanov Ivan G., Zakharov Alexei A., Yakimova Rositsa, Darakchieva Vanya	Critical View on Buffer Layer Formation and Monolayer Graphene Properties in High-Temperature Sublimation	APPLIED SCIENCES-BASEL	<a href="https://doi.org/10.3390/app11041891">10.3390/app11041891</a>
I311-PEEM MAXPEEM	Selegard Linnea, Skallberg Andreas, Zakharov Alexei, Abrikosova Natalia, Uvdal Kajsa	Step by step rare-earth catalyzed SiO <sub>x</sub> annealing and simultaneous formation of Europium-silicide by low coverage of Eu doped Gd <sub>2</sub> O <sub>3</sub> nanoparticles	SURFACE SCIENCE	<a href="https://doi.org/10.1016/j.susc.2020.121743">10.1016/j.susc.2020.121743</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*MAXPEEM	Bouhafs Chamseddine, Pezzini Sergio, Geisenhof Fabian R., Mishra Neeraj, Miseikis Vaidotas, Niu Yuran, Struzzi Claudia, Weitz R. Thomas, Zakharov Alexei A., Forti Stiven, Coletti Camilla	Synthesis of large-area rhombohedral few-layer graphene by chemical vapor deposition on copper	CARBON	<a href="https://doi.org/10.1016/j.carbon.2021.02.082">10.1016/j.carbon.2021.02.082</a>
*MAXPEEM	Armakavicius Nerijus, Kuhne Philipp, Eriksson Jens, Bouhafs Chamseddine, Stanishev Vallery, Ivanov Ivan G., Yakimova Rositsa, Zakharov Alexei A., Al-Temimy Ameer, Coletti Camilla, Schubert Mathias, Darakchiev Vanya	Resolving mobility anisotropy in quasi-free-standing epitaxial graphene by terahertz optical Hall effect	CARBON	<a href="https://doi.org/10.1016/j.carbon.2020.09.035">10.1016/j.carbon.2020.09.035</a>
NanoMAX	Neckel Itamar T., da Silva Francisco M. C., Guedes Eduardo B., Dias Carlos S. B., Soares Marcio M., Costa Carlos A. R., Mori Thiago J. A., Bjorling Alexander, Zakharov Alexei, Tolentino Helio C. N.	Unveiling Center-Type Topological Defects on Rosettes of Lead Zirconate Titanate Associated to Oxygen Vacancies	ANNALEN DER PHYSIK	<a href="https://doi.org/10.1002/andp.202100219">10.1002/andp.202100219</a>
NanoMAX	Warlo M, Bark G, Wanhainen C, Mcelroy I, Björling A, Johansson U	Extreme-resolution synchrotron X-Ray fluorescence mapping of ore samples	ORE GEOLOGY REVIEWS	<a href="https://doi.org/10.1016/j.oregeorev.2021.104620">10.1016/j.oregeorev.2021.104620</a>
NanoMAX	Johansson U, Carbone D, Kalbfleisch S, Björling A, Kahnt M, Sala S, Stankevici T, Liebi M, Rodriguez Fernandez A, Bring B, Paterson D, Thånell K, Bell P, Erb D, Weninger C, Matej Z, Roslund L, Åhnberg K, Norsk Jensen B, Tarawneh H, Mikkelsen A, Vogt U	NanoMAX: the hard X-ray nanoprobe beamline at the MAX IV Laboratory	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521008213">10.1107/S1600577521008213</a>
*NanoMAX	Rodriguez-Fernandez A, Diaz A, Iyer AHS, Verezhak M, Wakonig K, Colliander MH, Carbone D	Imaging Ultrafast Dynamical Diffraction Wave Fronts in Strained Si with Coherent X Rays	PHYSICAL REVIEW LETTERS	<a href="https://doi.org/10.1103/PhysRevLett.127.157402">10.1103/PhysRevLett.127.157402</a>
NanoMAX	Langer Max, Zhang Yuhe, Figueirinhas Diogo, Forien Jean-Baptiste, Mom Kannara, Mouton Claire, Mokso Rajmund, Villanueva-Perez Pablo	PyPhase - a Python package for X-ray phase imaging	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521004951">10.1107/S1600577521004951</a>
*NanoMAX Balder	Gustavsson Nadja, Paulus Agnes, Martinsson Isak, Engdahl Anders, Medjoubi Kadda, Klementiev Konstantin, Somogyi Andrea, Deierborg Tomas, Borondics Ferenc, Gouras Gunnar K., Klementieva Oxana	Correlative optical photothermal infrared and X-ray fluorescence for chemical imaging of trace elements and relevant molecular structures directly in neurons	LIGHT-SCIENCE & APPLICATIONS	<a href="https://doi.org/10.1038/s41377-021-00590-x">doi:10.1038/s41377-021-00590-x</a>
NanoMAX	Langer Max, Zhang Yuhe, Figueirinhas Diogo, Forien	PyPhase - a Python package for X-ray phase imaging	JOURNAL OF SYNCHROTRON	<a href="https://doi.org/10.1107/S1600577521004951">doi:10.1107/S1600577521004951</a>

\* Publications in journals with impact factor > 5 reported at time of publication

BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
	Jean-Baptiste, Mom Kannara, Mouton Claire, Mokso Rajmund, Villanueva-Perez Pablo		RADIATION	
NanoMAX	Björling A, Weninger C, Kahnt M, Kalbfleisch S, Johansson U, Sala S, Lenrick F, Thånell K	Contrast – a lightweight Python framework for beamline orchestration and data acquisition	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1088/1367-2630/ac02e0">10.1088/1367-2630/ac02e0</a>
NanoMAX	Dzhigaev D, Zhang Z, A B Marçal L, Sala S, Björling A, Mikkelsen A, Wallentin J	Three-dimensional coherent x-ray diffraction imaging of ferroelastic domains in single CsPbBr <sub>3</sub> perovskite nanoparticles	NEW JOURNAL OF PHYSICS	<a href="https://doi.org/10.1088/1367-2630/ac02e0">10.1088/1367-2630/ac02e0</a>
NanoMAX	Marçal LAB, Benter S, Irish A, Dzhigaev D, Oksenberg E, Rothman A, Sanders E, Hammarberg S, Zhang Z, Sala S, Björling A, Unger E, Mikkelsen A, Joselevich E, Timm R, Wallentin J	Inducing ferroelastic domains in single-crystal CsPbBr <sub>3</sub> perovskite nanowires using atomic force microscopy	PHYSICAL REVIEW MATERIALS	<a href="https://doi.org/10.1103/PhysRevMaterials.5.L063001">10.1103/PhysRevMaterials.5.L063001</a>
*NanoMAX	Nukala P, Ahmadi M, Wei Y, Graaf SD, Stylianidis E, Chakraborty T, Matzen S, Zandbergen HW, Björling A, Mannix D, Carbone D, Kooi B, Noheda B	Reversible oxygen migration and phase transitions in hafnia-based ferroelectric devices	SCIENCE	<a href="https://doi.org/10.1126/science.abf3789">10.1126/science.abf3789</a>
*NanoMAX	Nissila Tuukka, Wei Jiayuan, Geng Shiyu, Teleman Anita, Oksman Kristiina	Ice-Templated Cellulose Nanofiber Filaments as a Reinforcement Material in Epoxy Composites	NANOMATERIALS	<a href="https://doi.org/10.3390/nano11020490">10.3390/nano11020490</a>
*Species	Bulbucan Claudiu, Preger Calle, Kostanyan Aram, Jensen Kirsten M. O., Kokkonen Esko, Piamonteze Cinthia, Messing Maria E., Westerstrom Rasmus	Large exchange bias in Cr substituted Fe <sub>3</sub> O <sub>4</sub> nanoparticles with FeO subdomains	NANOSCALE	<a href="https://doi.org/10.1039/d1nr04614d">10.1039/d1nr04614d</a>
*Species	Naslund Lars-Ake, Mikkela Mikko-Heikki, Kokkonen Esko, Magnuson Martin	Chemical bonding of termination species in 2D carbides investigated through valence band UPS/XPS of Ti <sub>3</sub> C <sub>2</sub> T <sub>x</sub> MXene	2D MATERIALS	<a href="https://doi.org/10.1088/2053-1583/ac1ea9">10.1088/2053-1583/ac1ea9</a>
Species	Redekop Evgeniy A., Johansson Niclas, Kokkonen Esko, Urpelainen Samuli, da Silva Felipe Lopes, Kaipio Mikko, Nieminen Heta-Elisa, Rehman Foqia, Miikkulainen Ville, Ritala Mikko, Olsbye Unni	Synchronizing gas injections and time-resolved data acquisition for perturbation-enhanced APXPS experiments	REVIEW OF SCIENTIFIC INSTRUMENTS	<a href="https://doi.org/10.1063/5.0039957">10.1063/5.0039957</a>
*Species	Lin Jack J., Raj Kamal R., Wang Stella, Kokkonen Esko, Mikkela Mikko-Heikki, Urpelainen Samuli, Prisle Nonne L.	Pre-deliquescent water uptake in deposited nanoparticles observed with in situ ambient pressure X-ray photoelectron spectroscopy	ATMOSPHERIC CHEMISTRY AND PHYSICS	<a href="https://doi.org/10.5194/acp-21-4709-2021">10.5194/acp-21-4709-2021</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
Species	Kokkonen Esko, da Silva Felipe Lopes, Mikkela Mikko-Heikki, Johansson Niclas, Huang Shih-Wen, Lee Jenn-Min, Andersson Margit, Bartalesi Antonio, Reinecke Benjamin N., Handrup Karsten, Tarawneh Hamed, Sankari Rami, Knudsen Jan, Schnadt Joachim, Sathe Conny, Urpelainen Samuli	Upgrade of the SPECIES beamline at the MAX IV Laboratory	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521000564">10.1107/S1600577521000564</a>
Veritas Species	Agaker Marcus, Englund Carl-Johan, Sjoblom Peter, Wassdahl Nial, Fredriksson Pierre, Sathe Conny	An ultra-high-stability four-axis ultra-high-vacuum sample manipulator	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521004859">10.1107/S1600577521004859</a>
Accelerator	F Tavares P, J Cullinan F, Andersson Å, Olsson D, Svård R	Beam-based characterization of higher-order-mode driven coupled-bunch instabilities in a fourth-generation storage ring	NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH	<a href="https://doi.org/10.1016/j.nima.2021.165945">10.1016/j.nima.2021.165945</a>
Accelerator	Olsson DK, Andersson	Studies on Transverse Resonance Island Buckets in third and fourth generation synchrotron light sources	NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH	<a href="https://doi.org/10.1016/j.nima.2021.165802">10.1016/j.nima.2021.165802</a>
Accelerator	Qin Weilun, Curbis Francesca, Andersson Joel, Goryashko Vitaliy, Isaksson Lennart, Kyle Billy, Lindau Filip, Mansten Erik, Pop Mihai, Salen Peter, Tarawneh Hamed, Tavares Pedro F., Thorin Sara, Vorozhtsov Alexey, Werin Sverker	<i>The FEL in the SXL project at MAX IV</i>	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521003465">doi:10.1107/S1600577521003465</a>
Accelerator	Afzali-Far B., Andersson A., Zhou K., Malmgren M.	Data analysis, spatial metrology network, and precision realignment of the entire MAX IV linear accelerator	NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT	<a href="https://doi.org/10.1016/j.nima.2021.165267">10.1016/j.nima.2021.165267</a>
Accelerator	Grabski M, Al-Dmour E	Commissioning and operation status of the MAX IV 3 GeV storage ring vacuum system	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521002599">doi: 10.1107/S1600577521002599</a>
*D1011	Kamal C., Stenberg Nader, Walle Lars Erik, Ragazzon Davide, Borg Anne, Uvdal Per, Skorodumova Natalia V, Odelius Michael, Sandell Anders	Core-Level Binding Energy Reveals Hydrogen Bonding Configurations of Water Adsorbed on TiO <sub>2</sub> (110) Surface	PHYSICAL REVIEW LETTERS	<a href="https://doi.org/10.1103/PhysRevLett.126.016102">10.1103/PhysRevLett.126.016102</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
I1011	Schönhense G, Medjanik K, Fedchenko O, Zymaková A, Chernov S, Kutnyakhov D, Vasilyev D, Babenkov S, Elmers H J, Baumgärtel P, Goslawski P, Öhrwall G, Grunske T, Kauerhof T, von Volkmann K, Kallmayer M, Ellguth M, Oelsner A	Time-of-Flight Photoelectron Momentum Microscopy with 80-500 MHz Photon Sources: Electron-Optical Pulse Picker or Bandpass Pre-Filter	JOURNAL OF SYNCHROTRON RADIATION	<a href="https://doi.org/10.1107/S1600577521010511">10.1107/S1600577521010511</a>
I311	Soldemo M, Weissenrieder J	Sulfur dioxide interaction with thin iron oxide films on low-index surfaces of iron	SURFACE SCIENCE	<a href="https://doi.org/10.1016/j.susc.2021.121935">10.1016/j.susc.2021.121935</a>
I811	Bendz D, Tiberg C, Kleja DB	Mineralogical characterization and speciation of sulfur, zinc and lead in pyrite cinder from Bergvik, Sweden	APPLIED GEOCHEMISTRY	<a href="https://doi.org/10.1016/j.apgeochem.2021.105010">10.1016/j.apgeochem.2021.105010</a>
*I811	Tiberg Charlotta, Sjostedt Carin, Fedje Karin, Karlfeldt	Speciation of Cu and Zn in bottom ash from solid waste incineration studied by XAS, XRD, and geochemical modelling	WASTE MANAGEMENT	<a href="https://doi.org/10.1016/j.wasman.2020.10.023">10.1016/j.wasman.2020.10.023</a>
I911-4	Barciszewski J, Szpotkowski K, Wiśniewski J, Kołodziejczyk R, Rakus D, Dzugaj MJA	Structural studies of human muscle FBPase	ACTA BIOCHIMICA POLONICA	<a href="https://doi.org/10.18388/abp.2020_5554">10.18388/abp.2020_5554</a>
I911-4 MX	Kuktaite Ramune, Repo-Carrasco-Valencia Ritva, de Mendoza Cesar C. H., Plivelic Tomas S., Hall Stephen, Johansson Eva	Innovatively processed quinoa (Chenopodium quinoa Willd.) food: chemistry, structure and end-use characteristics	JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE	<a href="https://doi.org/10.1002/jsfa.11214">10.1002/jsfa.11214</a>
*I911-4	Helvig SY, Woythe L, Pham S, Bor G, Andersen H, Moghimi SM, Yagmur A	A Structurally Diverse Library of Glycerol Monooleate/Oleic Acid Non-Lamellar Liquid Crystalline Nanodispersions Stabilized with Nonionic Methoxypoly(ethylene glycol) (mPEG)-Lipids Showing Variable Complement Activation Properties	JOURNAL OF COLLOID AND INTERFACE SCIENCE	<a href="https://doi.org/10.1016/j.jcis.2020.08.085">10.1016/j.jcis.2020.08.085</a>
*MX	Caldararu Octav, Ekberg Vilhelm, Logan Derek T., Oksanen Esko, Ryde Ulf	Exploring ligand dynamics in protein crystal structures with ensemble refinement	ACTA CRYSTALLOGRAPHICA SECTION D	<a href="https://doi.org/10.1107/S2059798321006513">10.1107/S2059798321006513</a>

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BEAMLINE(S)	AUTHORS	TITLE	JOURNAL	DOI
*MX	Franza Thierry, Rogstam Annika, Thiyagarajan Saravanamuthu, Sullivan Matthew J., Derre-Bobillot Aurelie, Bauer Mikael C., Goh Kelvin G. K., Da Cunha Violette, Glaser Philippe, Logan Derek T., Ulett Glen C., von Wachenfeldt Claes, Gaudu Philippe	NAD(+) pool depletion as a signal for the Rex regulon involved in Streptococcus agalactiae virulence	PLOS PATHOGENS	<a href="https://doi.org/10.1371/journal.ppat.1009791">10.1371/journal.ppat.1009791</a>
MX	Zhao J, Tandrup T, Bissaro B, Barbe S, Poulsen JN, Andre I, Dumon C, Lo Leggio L, O'Donohue MJ, Faure R	Probing the determinants of the transglycosylation/hydrolysis partition in a retaining alpha-L-arabinofuranosidase	NEW BIOTECHNOLOGY	<a href="https://doi.org/10.1016/j.nbt.2021.01.008">10.1016/j.nbt.2021.01.008</a>
*MX	Beckmann R, Jensen K, Fenn S, Speck J, Krause K, Meier A, Röth M, Fauser S, Kimbung R, Logan DT, Steegmaier M, Kettenberger H	DutaFabs are engineered therapeutic Fab fragments that can bind two targets simultaneously	NATURE COMMUNICATIONS	<a href="https://doi.org/10.1038/s41467-021-20949-3">10.1038/s41467-021-20949-3</a>

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