



# LEAPS

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Accelerator-based  
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## SELECTED PUBLICATIONS

JUNE 2023

### ALBA

Dubouis, N., Marchandier, T., Rousse, G. et al. Extending insertion electrochemistry to soluble layered halides with superconcentrated electrolytes. *Nature Materials* (2021).

<https://doi.org/10.1038/s41563-021-01060-w>

Wang, SJ., Sawatzki, M., Darbandy, G. et al. Organic bipolar transistors. *Nature* 606, 700–705 (2022).

<https://doi.org/10.1038/s41586-022-04837-4>

### DESY

Sebastian Günther et al. X-ray screening identifies active site and allosteric inhibitors of SARS-CoV-2 main protease. *Science* 372, 642-646 (2021).

<https://www.science.org/doi/10.1126/science.abf7945>

Fabian Trost et. al *Physical Science: Imaging via Correlation of X-Ray Fluorescence Photons; Physical Review Letters*, 2023;

<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.130.173201>

### ELETTRA

Maroju, P.K., Di Fraia, M., Plekan, O. et al. Attosecond coherent control of electronic wave packets in two-colour photoionization using a novel timing tool for seeded free-electron laser. *Nat. Photon.* 17, 200–207 (2023).

<https://doi.org/10.1038/s41566-022-01127-3>

D. Ksenzov et al. Nanoscale Transient Magnetization Gratings Created and Probed by Femtosecond Extreme Ultraviolet Pulses", *Nano Letters* 21, 2905 (2021);

<https://doi.org/10.1021/acs.nanolett.0c05083>

## **ESRF**

Walsh, C.L., Tafforeau, P., Wagner, W.L. et al. Imaging intact human organs with local resolution of cellular structures using hierarchical phase-contrast tomography. *Nat Methods* 18, 1532–1541 (2021).

<https://doi.org/10.1038/s41592-021-01317-x>

Jizhou Li et al. Dynamics of particle network in composite battery cathodes. *Science* 376, 517-521(2022).

<https://www.science.org/doi/10.1126/science.abm8962>

## **FELIX**

Jona Merx, Kas Houthuijs, Hidde Elferink et al. Characterization of Cyclic N-Acyliminium Ions by Infrared Ion Spectroscopy, P. J. T. Rutjes, *Chemistry a European Journal*, (2021).

<https://doi.org/10.1002/chem.202104078>

Rap, D.B., Schrauwen, J.G.M., Marimuthu, A.N. et al. Low-temperature nitrogen-bearing polycyclic aromatic hydrocarbon formation routes validated by infrared spectroscopy. *Nat Astron* 6, 1059–1067 (2022).

<https://doi.org/10.1038/s41550-022-01713-z>

## **HZDR**

Labat, M., Cabadağ, J.C., Ghaith, A. et al. Seeded free-electron laser driven by a compact laser plasma accelerator. *Nat. Photon.* 17, 150–156 (2023).

<https://doi.org/10.1038/s41566-022-01104-w>

H. Chu et al., Fano interference between collective modes in cuprate high-T<sub>c</sub> superconductors, *Nat. Commun.* 14, 1343 (2023),

<https://doi.org/10.1038/s41467-023-36787-4>

## **HZB**

Takenaka, M., Takenaka, S., Barthel, T. et al. DYW domain structures imply an unusual regulation principle in plant organellar RNA editing catalysis. *Nat Catal* 4, 510–522 (2021).

<https://doi.org/10.1038/s41929-021-00633-x>

Zhang L, Lin D, Sun X, Curth U, Drosten C, Sauerhering L, Becker S, Rox K, Hilgenfeld R. Crystal structure of SARS-CoV-2 main protease provides a basis for design of improved  $\alpha$ -ketoamide inhibitors. *Science*. 2020 Apr 24; 368 (6489): 409-412.

<https://www.science.org/doi/10.1126/science.abb3405>

## **ISA**

Meinert, C., Garcia, A.D., Topin, J. et al. Amino acid gas phase circular dichroism and implications for the origin of biomolecular asymmetry. *Nat Commun* 13, 502 (2022).

<https://www.nature.com/articles/s41467-022-28184-0>

Bueno-Carrasco, M.T., Cuéllar, J., Flydal, M.I. et al. Structural mechanism for tyrosine hydroxylase inhibition by dopamine and reactivation by Ser40 phosphorylation. *Nat Commun* 13, 74 (2022).

<https://doi.org/10.1038/s41467-021-27657-y>

## **MAX IV**

Kozielski, F., Sele, C., Talibov, C.V.O., et al. Identification of fragments binding to SARS-CoV-2 nsp10 reveals ligand-binding sites in conserved interfaces between nsp10 and nsp14/nsp16, F., *RSC Chem. Biol.*, 2022,3, 44-55 (2021).

<https://pubs.rsc.org/en/content/articlelanding/2022/cb/d1cb00135c#!divAbstract>

Weststrate, C.J.J., Sharma, D., Garcia Rodriguez, D. et al. Mechanistic insight into carbon-carbon bond formation on cobalt under simulated Fischer-Tropsch synthesis conditions. *Nat Commun* 11, 750 (2020).

<https://doi.org/10.1038/s41467-020-14613-5>

## **PSI**

Gruhl, T., Weinert, T., Rodrigues, M.J. et al. Ultrafast structural changes direct the first molecular events of vision. *Nature* 615, 939–944 (2023).

<https://doi.org/10.1038/s41586-023-05863-6>

Hiroki Ueda, Mirian García-Fernández, Stefano Agrestini, Carl P. Romao, Jeroen van den Brink, Nicola A. Spaldin, Ke-Jin Zhou, and Urs Staub, Chiral phonons probed by X rays, *Nature* (Online 7. June 2023)

<https://doi.org/10.1038/s41586-023-06016-5>

## **PTB**

A. Hornemann, et al. Investigating Membrane-Mediated Antimicrobial Peptide Interactions with Synchrotron Radiation Far-Infrared Spectroscopy, *ChemPhysChem*, e202100815 (2022)

<https://doi.org/10.1002/cphc.202100815>

C. Zech, et al. Polysulfide driven degradation in lithium–sulfur batteries during cycling – quantitative and high time-resolution operando X-ray absorption study for dissolved polysulfides probed at both electrode sides. *Journal of Materials Chemistry A* 9, 10231 (2021)

<https://doi.org/10.1039/DOTA12011A>

## **SOLARIS**

Walczak, K., Plewa, A., Ghica, C., et al. NaMn0.2Fe0.2Co0.2Ni0.2Ti0.2O2 high-entropy layered oxide – experimental and theoretical evidence of high electrochemical performance in sodium batteries. *Energy Storage Materials*, 47, pp. 500–514 (2022).

<https://doi.org/10.1016/j.ensm.2022.02.038>

Kaczmarska, Z., Czarnocki-Cieciura, M. et al. Structural Basis of Transposon End Recognition Explains Central Features of Tn7 Transposition Systems. *Molecular Cell*, Vol.82, 14, pp. 2618-2632.E7 (2022).

<https://doi.org/10.1016/j.molcel.2022.05.005>

## **SOLEIL**

Vergalli, J., Atzori, A., Pajovic, J. et al. The challenge of intracellular antibiotic accumulation, a function of fluoroquinolone influx versus bacterial efflux. *Commun Biol* 3, 198 (2020).

<https://doi.org/10.1038/s42003-020-0929-x>

Fyfe, C.D., Bernardo-García, N., Fradale, L. et al. Crystallographic snapshots of a B12-dependent radical SAM methyltransferase. *Nature* 602, 336–342 (2022).

<https://doi.org/10.1038/s41586-021-04355-9>