

Facility Update



Sakura Pascarelli

European XFEL Online Event

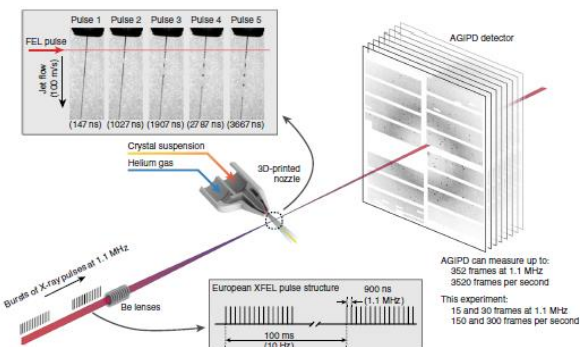
June 9th 2020



ARTICLE

DOI: 10.1038/s41467-018-06156-7 OPEN

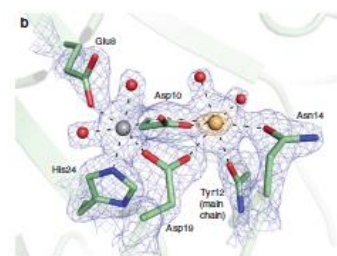
Megahertz serial crystallography

Max O. Wiedorn et al.[#]

ARTICLE

DOI: 10.1038/s41467-018-05953-4 OPEN

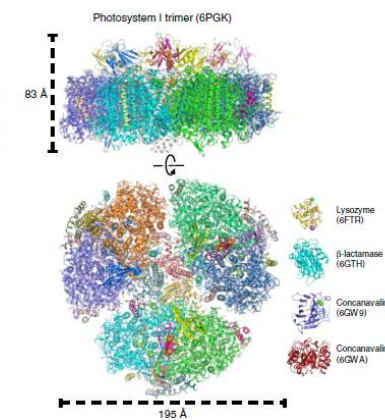
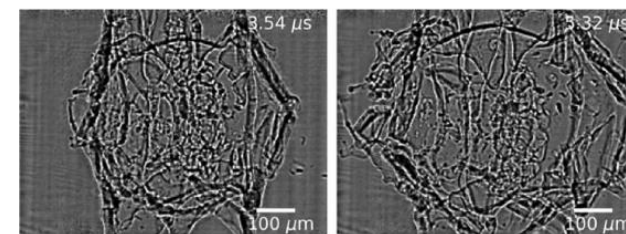
Megahertz data collection from protein microcrystals at an X-ray free-electron laser



ARTICLE

<https://doi.org/10.1038/s41467-019-12955-3> OPEN

Membrane protein megahertz crystallography at the European XFEL



nature methods

ARTICLES

<https://doi.org/10.1038/s41592-019-0628-z>

Time-resolved serial femtosecond crystallography at the European XFEL

Suraj Pandey^{1,4}, Richard Bean^{2,14}, Tokushi Sato^{2,14}, Ishwor Poudyal¹, Johan Bielecki², Jorvani Cruz Villarreal³, Oleksandr Yefanov⁴, Valerio Mariani⁴, Thomas A. White³, Christopher Kupitz², Mark Hunter², Mohamed H. Abdellatif³, Saša Bajt³, Valerii Bondar², Austin Echelmeier³, Diandra Doppler³, Moritz Emons², Matthias Frank⁷, Raimund Fromme³, Yaroslav Gevorkov^{4,8}, Gabriele Giovanetti², Man Jiang², Daihyun Kim², Yoonhee Kim², Henry Kirkwood², Anna Klimovskaia², Juraj Knoska^{4,9}, Faisal H. M. Koua⁴, Romain Letrun², Stella Lisova¹⁰, Luis Maia², Victoria Mazalova⁴, Domingo Meza¹¹, Thomas Michelat², Abbas Ourmazd¹, Guido Palmer², Marco Ramilli², Robin Schubert¹¹, Peter Schwander¹, Alessandro Silenzi², Jolanta Sztuk-Dambietz², Alexandra Tolstikova⁴, Henry N. Chapman^{4,9,12}, Alexandra Ros³, Anton Barty⁴, Petra Fromme³, Adrian P. Mancuso^{2,19} and Marius Schmidt^{1*}

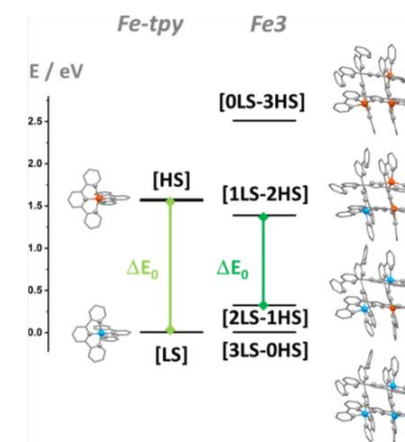
THE JOURNAL OF
PHYSICAL CHEMISTRY
Letters

pubs.acs.org/JPC

Letter

Revealing Hot and Long-Lived Metastable Spin States in the Photoinduced Switching of Solvated Metallogrid Complexes with Femtosecond Optical and X-ray Spectroscopies

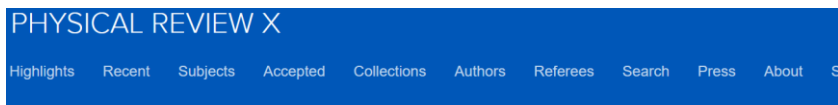
Maria Naumova, Aleksandr Kalinko, Joanne W. L. Wong, Mohamed Abdellah, Huifang Geng, Edoardo Domenichini, Jie Meng, Sol Alvarez Gutierrez, Pierre-Adrien Mante, Weihua Lin, Peter Zalden, Andreas Galler, Frederico Lima, Katharina Kubicek, Mykola Biednov, Alexander Britz, Stefano Checchia, Victoria Kabanova, Michael Wulff, Jennifer Zimara, Dirk Schwarzer, Serhij Demeshko, Vadim Murzin, David Gosztola, Martin Jarenmark, Jianxin Zhang, Matthias Bauer, Max Latevi Lawson Daku, Wojciech Gawelda, Dmitry Khakhulin, Christian Bressler, Franc Meyer, Kaibo Zheng, and Sophie E. Canton*

Cite This: <https://dx.doi.org/10.1021/acs.jpcl.9b03883>

Read Online

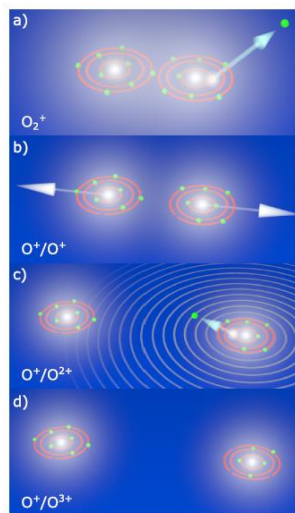
European XFEL

Last 2 months...



Accepted Paper
Photoelectron diffraction imaging of a molecular breakup using an X-ray free-electron laser

Phys. Rev. X
Gregor Kastirke et al.
Accepted 15 April 2020



AIP Scilight

HOME BROWSE INFO

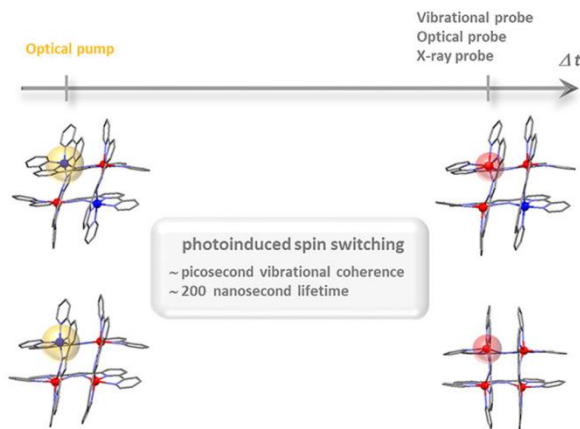
05 JUNE 2020 • <https://doi.org/10.1063/1.51001326>

Solvated iron metallogrid complex exhibits reversible photocycle

Adam Liebendorfer



A MHz-repetition-rate hard X-ray free-electron laser driven by a superconducting linear accelerator



ARTICLE

<https://doi.org/10.1038/s42005-020-0362-y>

OPEN

Megahertz single-particle imaging at the European XFEL

Egor Sobolev et al.



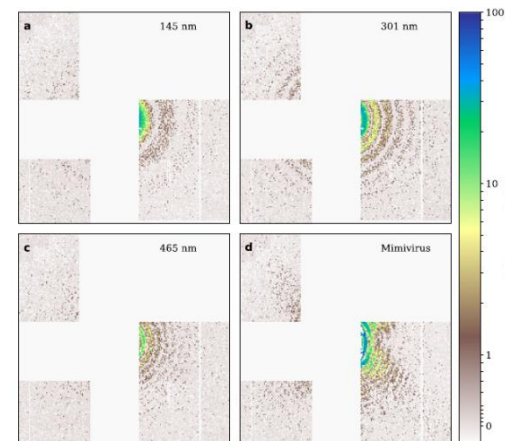
Review

First Experiments in Structural Biology at the European X-ray Free-Electron Laser

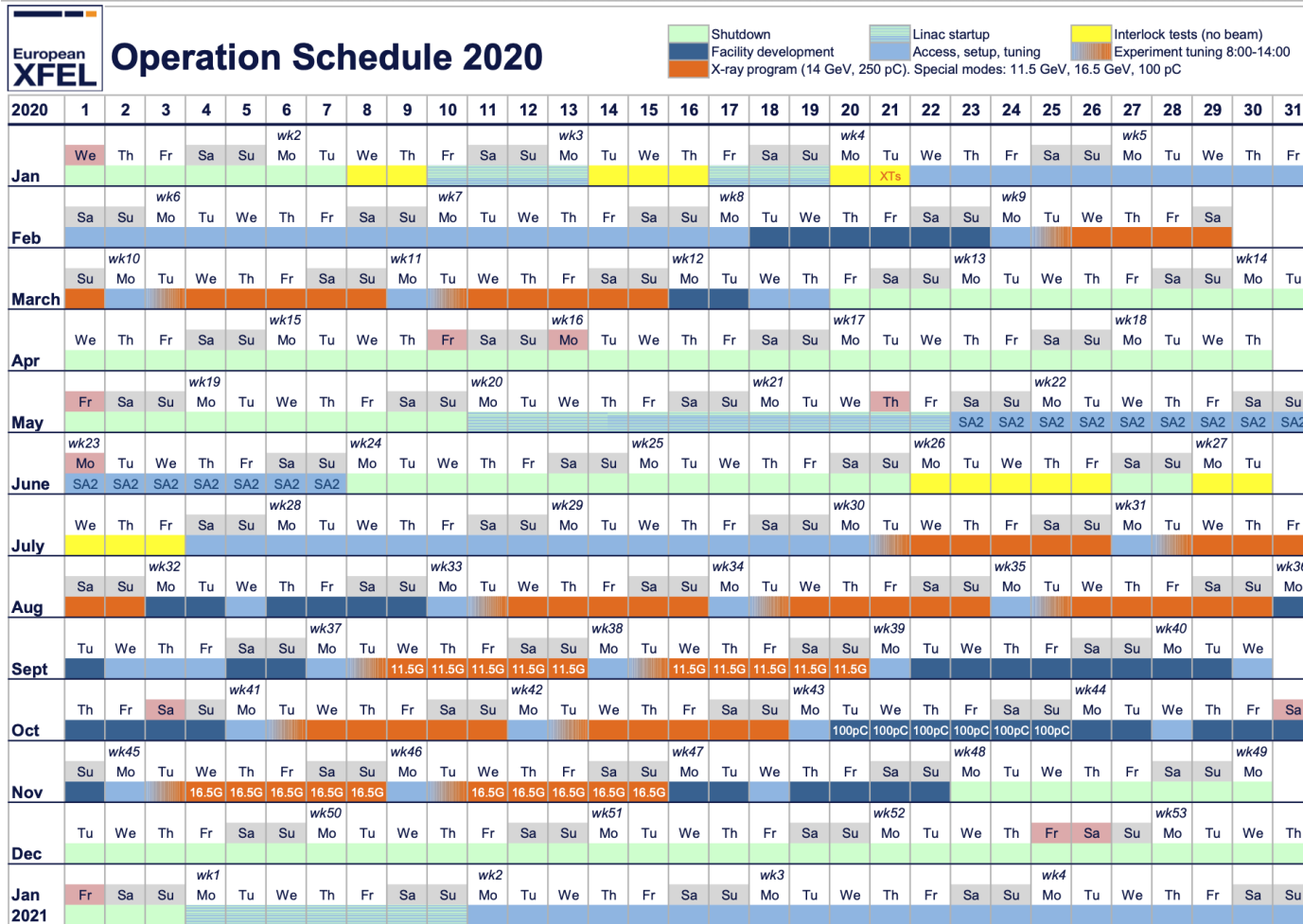
Grant Mills^{1,*}, Richard Bean¹ and Adrian P. Mancuso^{1,2}

- ¹ European X-Ray Free-Electron Laser Facility GmbH, Holzkoppel 4, 22869 Schenefeld, Germany; richard.bean@xfel.eu (R.B.); adrian.mancuso@xfel.eu (A.P.M.)
- ² Department of Chemistry and Physics, La Trobe Institute for Molecular Science, La Trobe University, Melbourne, VIC 3086, Australia
- * Correspondence: grant.mills@xfel.eu

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Revised Operation Schedule 2020



version 20.05.2020

- < 16 March: Normal operation
- 16 March – 3 May: Reduced operation
- 4 May – 8 June: Restart
- 8 June – 3 July: Summer Shutdown
- 4 July: Restart Accelerator
- 21 July: Restart X-ray operation on instr.
- September: User operation

User Operation – after COVID-19 Pandemic

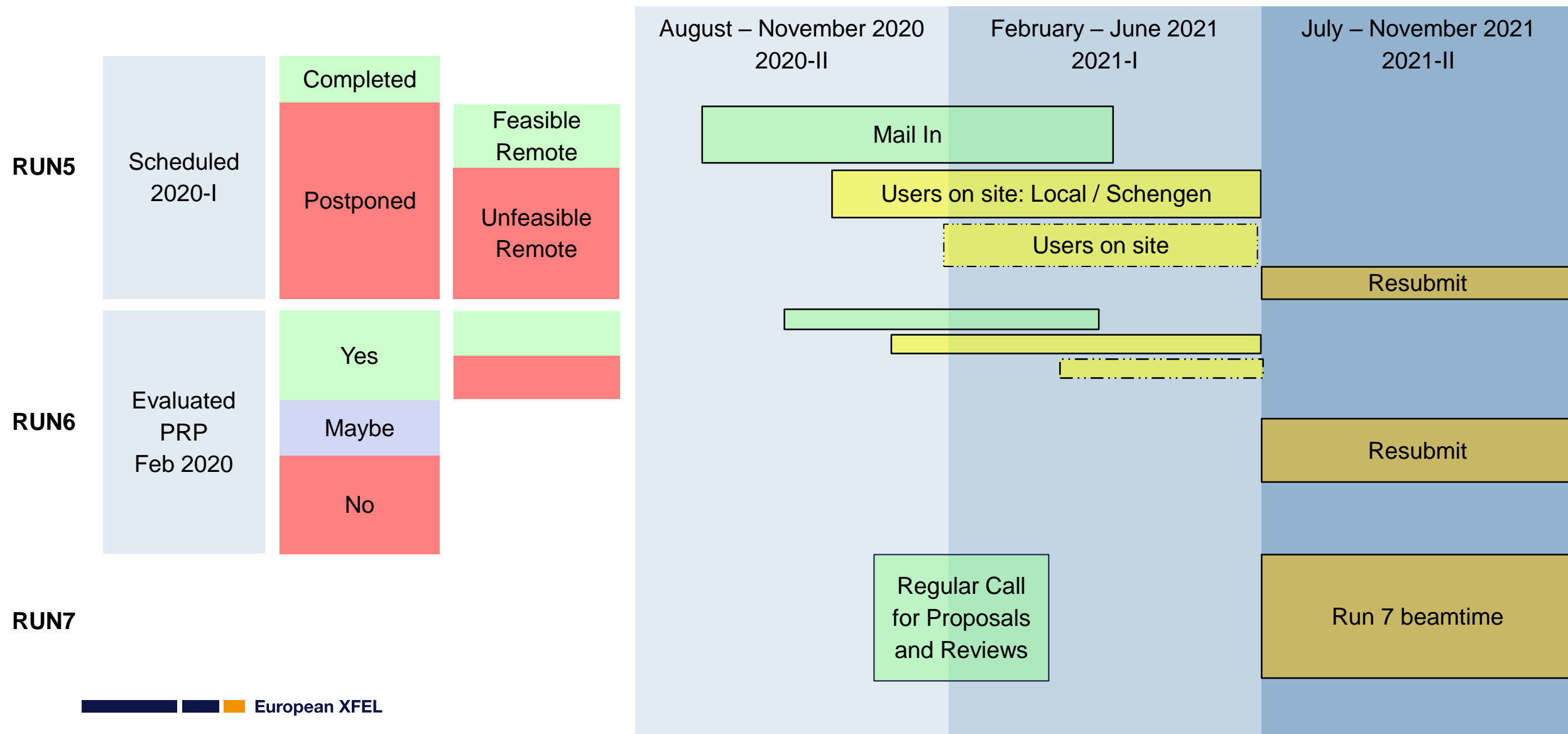
- Restart of User Operation on all instruments: September 2020
- Secure safety of European XFEL staff members and users on site
- Evolving boundary conditions
 - Working conditions in Experimental Hall
 - Travel / mobility restrictions of users
- Will try our best to have fair access for all shareholder countries



2020-II

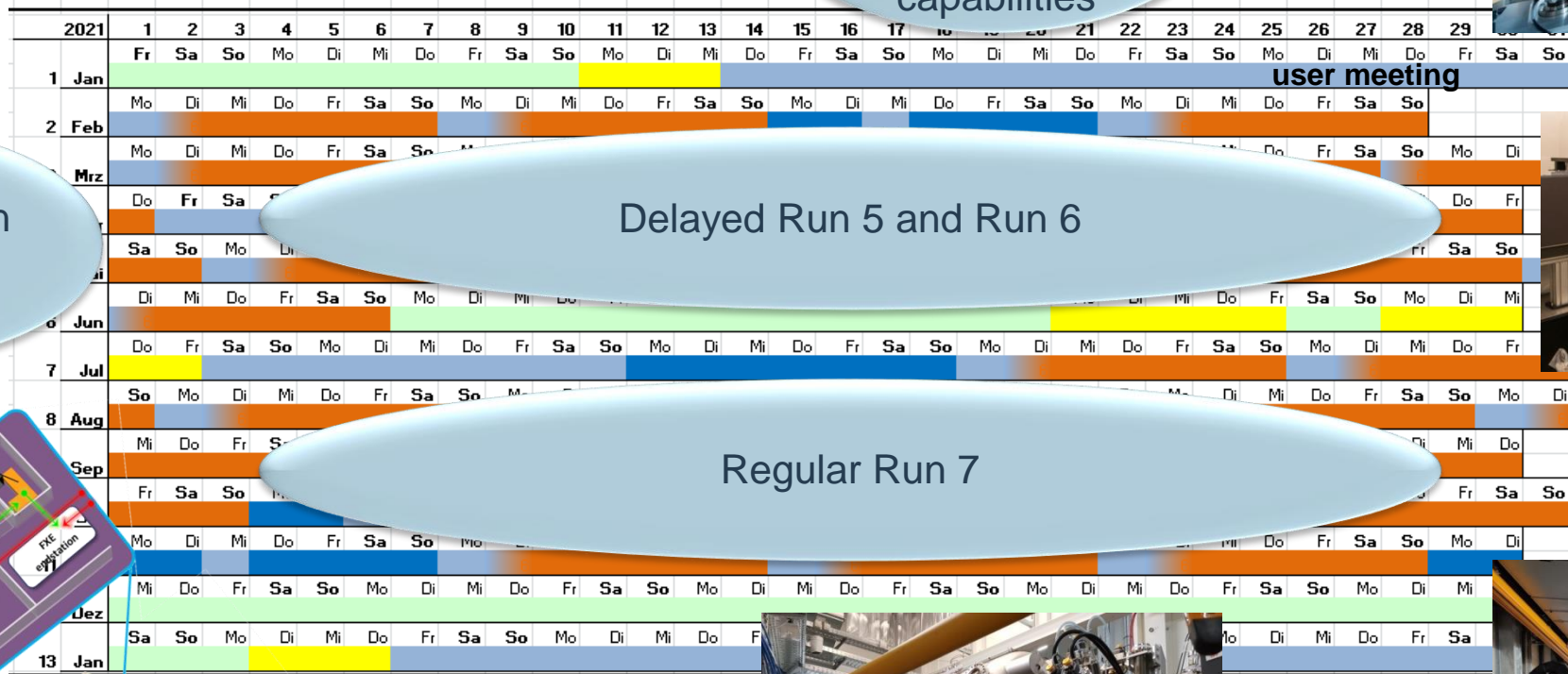
- No regular user operation – up to 3 user experiments per instrument
- Experiments performed by EuXFEL staff
 - remote connection with users ? [feasibility & safety, user consent]
 - users on site ?
- Commissioning, In House R&D and Facility Development

User Operation – after COVID-19 Pandemic



Operation Schedule 2021

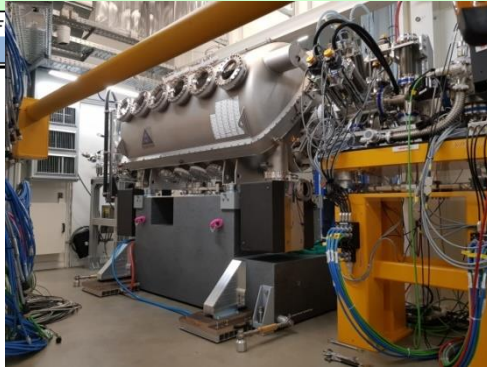
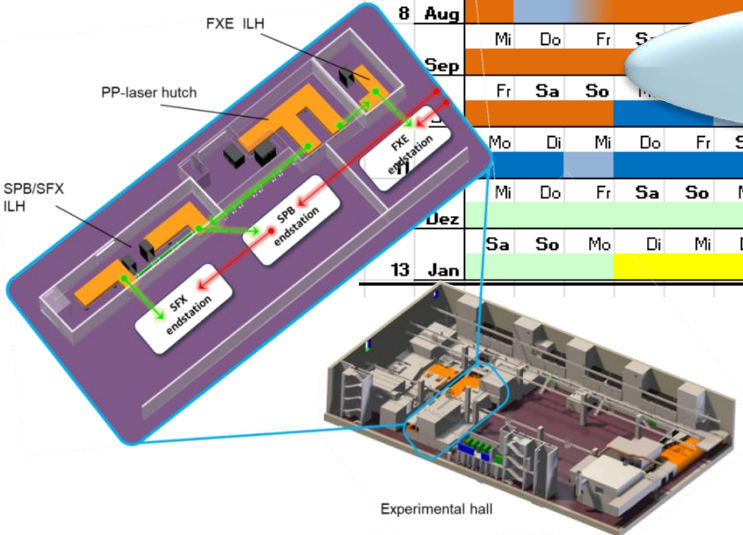
More commissioning to expand capabilities



all PP-lasers in operation

Delayed Run 5 and Run 6

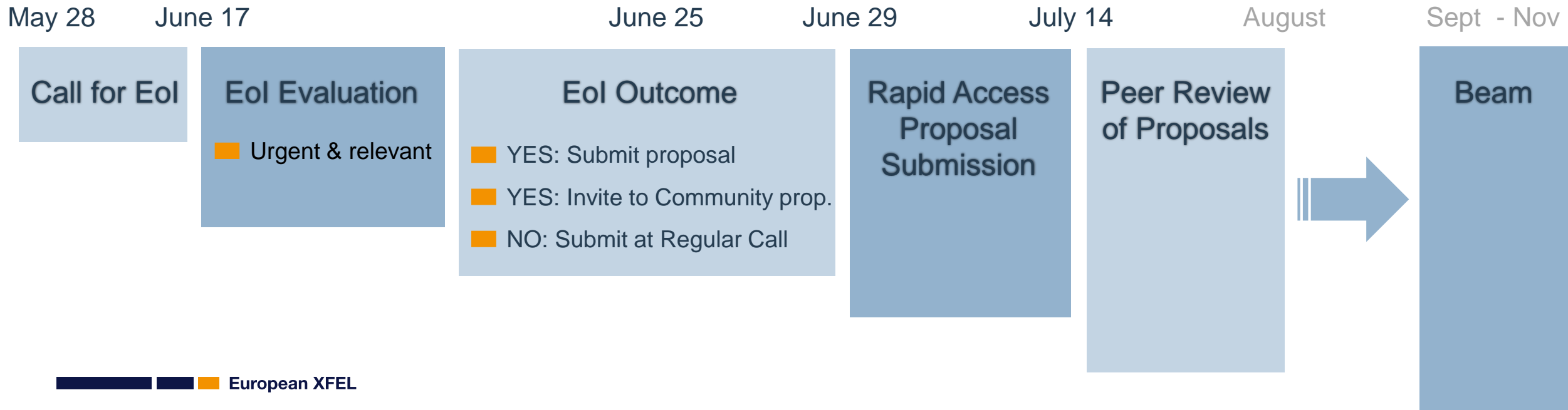
Regular Run 7



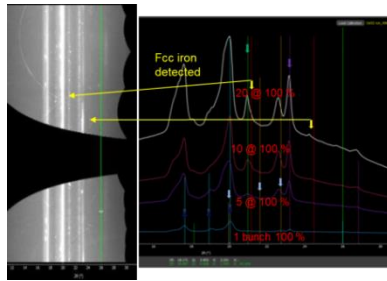
Experimental hall
European XFEL

Call for expressions of interest for rapid access COVID-19 related research opportunities

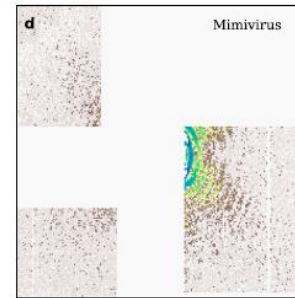
- Support the global campaign against the novel Coronavirus, SARS-CoV-2
- Offer specific and rapid access to the resources of the facility



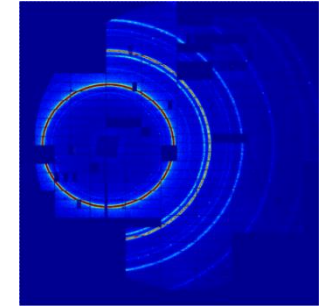
Thank you for your attention



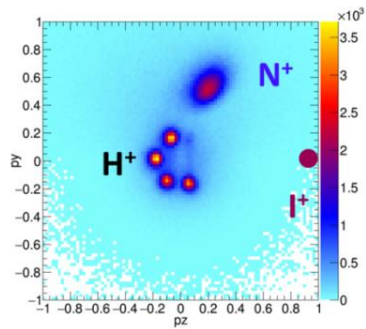
■ HED: Melting of Fe at Earth's core conditions



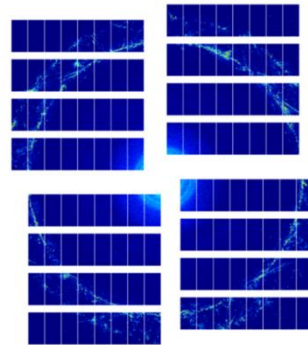
■ SPB/SFX: Scattering from Mimivirus



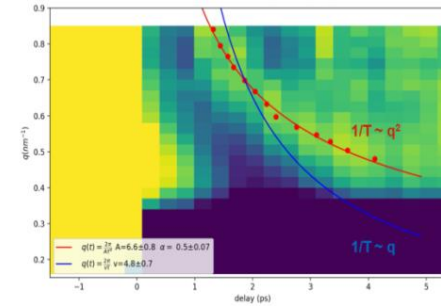
■ FXE: Melting and supercooling of Pd



■ SQS: Coulomb explosion of Iodopyridine



■ MID: Capturing early stages of crystallization in Kr



■ SCS: Resonant x-ray scattering from FePt nanoparticles

Challenging times but new opportunities to “connect”!!