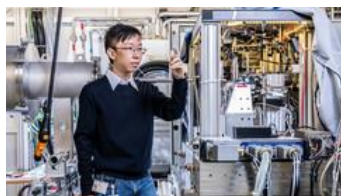


### How catalysts age



PSI researchers have developed a new tomography method with which they can measure chemical properties inside catalyst materials in 3-D extremely precisely and faster than before. The application is equally important for science and industry. The researchers published their results today in the journal *Science Advances*.

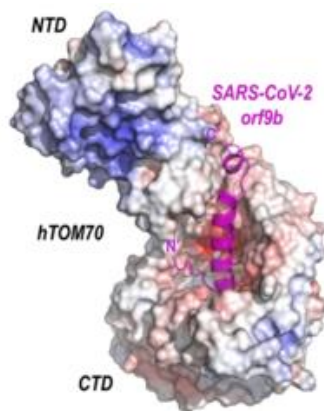
#### Read the full story:

<https://www.psi.ch/en/media/our-research/how-catalysts-age>

Z. Gao et al., *Science Advances* 9 June 2021 (online)

DOI: [10.1126/sciadv.abf6971](https://doi.org/10.1126/sciadv.abf6971)

### Crystal structure of SARS-CoV-2 Orf9b in complex with human TOM70 suggests unusual virus-host interactions



In a study published in *Nature Communications*, researchers at the NHC Key Laboratory of Systems Biology of Pathogens in Beijing, China, in collaboration with the Paul Scherrer Institut characterize the interactions of SARS-CoV-2 orf9b and human TOM70 biochemically, and they determine the 2.2 Å crystal structure of the TOM70 cytosolic domain with a bound SARS-CoV-2 orf9b peptide.

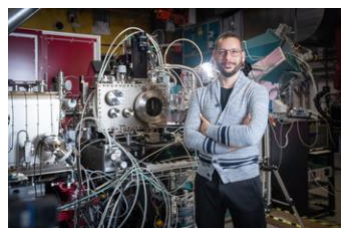
#### Read the full story:

<https://www.psi.ch/en/macromolecular-crystallography/scientific-highlights/crystal-structure-of-sars-cov-2-orf9b-in>

Gao X. P. et al., *Nature Communications* 12, 2843

DOI: <https://doi.org/10.1038/s41467-021-23118-8>

### SwissFEL — Uniquely sharp X-ray view



Researchers at SwissFEL have demonstrated, for the first time, transient grating (TG) spectroscopy in the hard X-ray regime. TG spectroscopy is based on generating an interference pattern by crossing two simultaneous pulses in a solid sample. In this way, a grating of spatially modulated excitation is created, from which subsequently a time-delayed probe pulse is diffracted. This versatile, background-free technique for probing vibrational, magnetic, and electronic degrees of freedom in the time

domain has been established first in the optical domain and has recently been demonstrated in the extreme ultraviolet (EUV) regime as well. The extension into the hard X-ray range now enables access to bulk properties of materials and paves the way for ultrafast coherent four-wave-mixing techniques using X-ray probes and involving nanoscale TG spatial periods.

#### Read the full story:

<https://www.psi.ch/en/media/our-research/uniquely-sharp-x-ray-view>

J.R. Rouxel et al., *Nature Photonics*, 22 Apr 2021 (online)

DOI: <https://www.nature.com/articles/s41566-021-00797-9>