

SEMINARIUM RENTGENOWSKIE

Dnia 21.04.2015r. o godz. 10.30, w sali D Instytutu Fizyki PAN, odbędzie się seminarium rtg., na którym Alexander Britz i Tadesse A. Assefa z European XFEL (Niemcy), wygłoszą referat na temat:

“Tracking Chemical Reactions with Ultrafast X-ray Techniques”

Abstract:

Photocatalytic processes as well as biological functions often involve i) intramolecular dynamics including changes in geometric structure, electronic and spin state changes of an active center, but also ii) intermolecular processes including solvent reorganization dynamics around the solute together with ligand detachment and/or exchange reactions. We seek to apply a suite of complementary time-resolved (TR) X-ray spectroscopies and scattering tools to unravel these elementary steps during the photochemically driven reaction.

We show benchmark experiments, where combined TR X-ray absorption (XAS) and X-ray emission (XES) spectroscopies synchronously determine electronic and geometric structure changes of iron centered complexes, such as $[\text{Fe}^{\text{II}}(\text{CN})_6]^{4-}$ and $[\text{Fe}^{\text{II}}(\text{terpy})_2]^{2+}$, next to other solvated functional molecular complexes. Combining XAS, XES and XDS appears as suitable to take the next step(s) towards answering vital questions in contemporary chemical dynamics, including photocatalytic and biological reactivity, using both picosecond synchrotrons and femtosecond XFEL radiation.

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