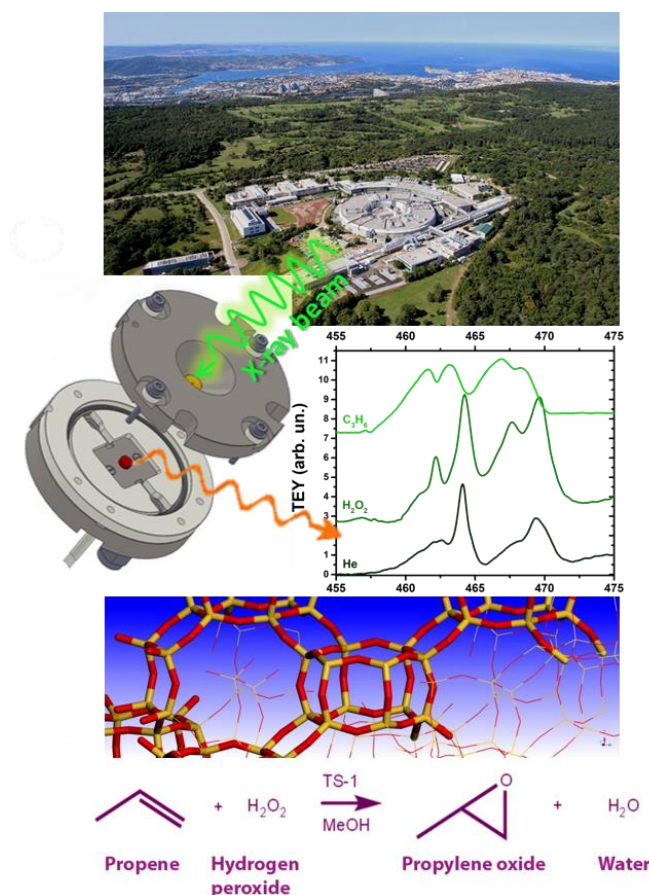


# Investigation of the surface reactivity of catalysts by operando X-ray absorption spectroscopy with Synchrotron radiation

PhD Ciclo XXXV (Borsa non ministeriale, IOM-CNR)



The project will touch many advanced topics in the field of material science. In particular, the candidate will have the opportunity to work at the synchrotron facility of Elettra (Trieste) in the APE-HE beamline. The PhD student will become a recognized expert of X-ray absorption spectroscopy (XAS) and will perform experiments for investigating the surface reactivity of interesting materials, especially for catalytic and gas-sensor applications, etc. (zeolites, metal oxides and metal-organic frameworks). Recently, at the APE-HE beamline, a new device has been developed that allows to perform *operando* XAS experiments at 1 bar up to 400°C. This kind of setup is a very new opportunity also because there are only a few devices like this in the world and it is only waiting for your forefront discoveries.

Moreover, the candidate will help to continue the development and the maintenance of the device, and will have the chance to interact and collaborate with the international scientific community. Indeed, since we are a facility, the PhD student will follow also other experiments of users who come from different laboratories. Furthermore, the candidate will spend a period abroad for experiments in other facilities, schools, and international conferences.

Others techniques are present in our lab and they support our work such as: XRD, XPS, TEM, computational simulation of XAS spectra.

We kindly invite you to write us for further information on the project and for planning a visit to our laboratory.

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