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Seminar

Synchrotron light for catalysis and energy storage applications

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Abstract

In-situ or operando synchrotron X-ray techniques are currently used to understand the fundamental mechanism and guide not only the materials design protocols but the technological optimization, as well, in energy storage and catalytical processes.

The merits of synchrotron X-rays, such as high brightness (10¹² more intense than that from the laboratory sources), highly collimated and energy tunable, make them perfect for applications in energy storage and catalysis science. The highly-collimated and variable focus synchrotron beam allows the implementation of sophisticated synchrotron techniques and it also allows the conduct of high temporal resolution (up to milliseconds) studies of the electrochemical/chemical reaction. In particular, the ultrahigh intense and penetration ability of synchrotron X-rays make the in situ and operando investigation of catalytical and electro-catalytical systems possible and easier to realize. Remarkably, this approach allows to monitor and follow the structural modifications of a solid material (catalyst), during a chemical process, unveiling the dynamic mechanism.

Place: Building D, ground floor (αίθουσα συνελεύσεων), Faculty of Engineering

Date & time: 07/07/2022 at 12:00