



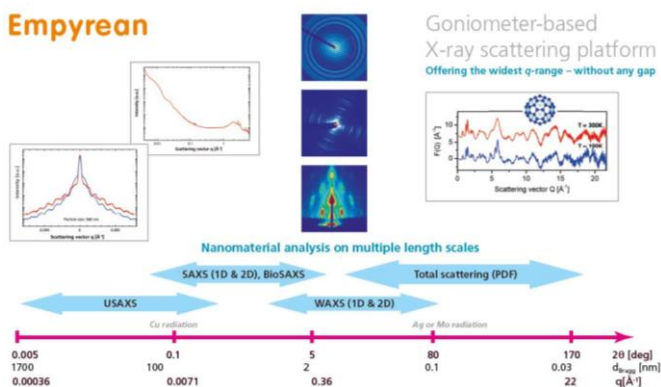
Eugenio Casini

Application support XRF - XRD
 PANalytical, Italy
 Via Cadore, 21, 20851 Lissone (MB)
 Tel + 39 039 2464 508
 Fax + 39 039 2434520456
 eugenio.casini@panalytical.com

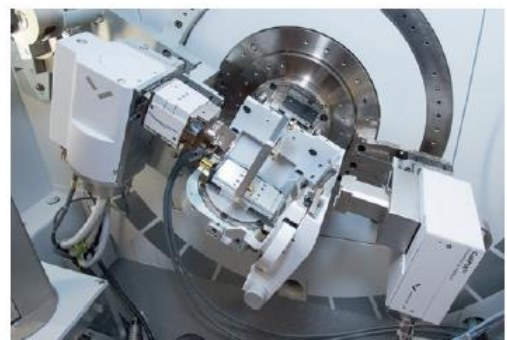
Surfing through the nanomaterial analysis on multiple length scales and the battery research with hard radiation

A few examples related to the characterization of nano-materials with the laboratory multi-purpose *PANalytical Empyrean* laboratory platform are discussed. The characterization of nano TiO₂ via different approaches, either in ambient and non-ambient conditions, is reported.

At the same time an “*in operando*” X ray diffraction study of pouch bag lithium-ion batteries is shown. The evolution of the lattice parameters during the charge/discharge cycles is monitored and discussed.



(a)



(b)

- (a) : Overview of the q range covered with the PANalytical Empyrean platform;
- (b) The Empyrean platform with the configuration for the in operando studies on pouch bag