# In Situ and Operando Approaches for Advanced Functional Materials

*Souren Grigorian*

Soft Matter Group
University of Siegen, Germany

The importance of eco-friendly and smart electronics has been increased in recent years. This interest was initiated by the future development of newly synthesized and more effective materials, among them taking particular attention to the structural optimizations of thin films and monolayer assemblies. Nowadays the real working prototypes of various devices based on organic/inorganic materials are already existing or under commissioning. In the talk novel approaches for the microstructural characterization of organic/hybrid materials, among them real time characterization of working devices will be highlighted. Such devices exhibit a unique combination of effective electronic conjugation, chemical stability and synthetic flexibility making them attractive for various applications. It will be also addressed the advantages of microstructural investigations using novel synchrotron radiation sources with exceptional opportunities to observe the structural features down to nanoscale. A possibility to implement such novel approaches and to develop international network at the Chemistry Department of Sapienza University will be also discussed.