

V **pondělí 16. ledna 2023 ve 14:00** se v přednáškovém sále ÚPT AVČR (Královopolská 147, Brno) uskuteční přednáška prof. Anjama Khursheeda (Politecnico di Milano) na téma

## **Secondary electron energy spectroscopy (SEES): A new material analysis tool for low voltage scanning electron microscopy.**

### **Abstract:**

Electron energy spectroscopic techniques are widely used in material science research to study electronic structure and atomic/molecular dynamics. Some focused electron beam spectromicroscopy analytical techniques, such as electron energy loss spectroscopy (EELS), straddle the border between both spectroscopy and microscopy, bringing together the two powerful disciplines of transmission electron microscopy (TEM) and atomic energy loss spectroscopy. This talk deals with another focused electron beam spectromicroscopic technique, one which involves the scanning electron microscope (SEM) and the electron energy spectroscopy of its scattered electrons. Recently, secondary electron energy spectroscopy (SEES) in a SEM was used to capture valence band density of states (DOS) signals of six test samples, which accurately matched their corresponding simulated DOS distributions. This is the first time that electron spectroscopic information of this kind has been obtained within a SEM. The main purpose of this talk is to demonstrate how using precision electron energy spectral methods inside a SEM has the potential to become another powerful spectromicroscopic analytical technique for material science research in the future and a new companion tool for low voltage scanning electron microscopy.



### **Biography:**

Anjam Khursheed completed his PhD in 1983 from the University of Edinburgh, Scotland. The subject of his thesis was related to designing electron energy spectrometers for the scanning electron microscope (SEM). Since then, he has spent over four decades developing new kinds of instrumentation for the SEM, both as a research fellow and as a professor in several academic institutions (most recently, the National University of Singapore). He is the author of several patents relating to electron source, lens and spectrometer design for SEMs, and he has written 3 books about electron optics and SEM design.