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S E M I N A R
aus
Halbleiterphysik und Nanotechnologie

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"Important Aspects of Physical Adsorption Characterization of Nanoporous Materials"

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Over the last decade, major advances facilitated the emergence of novel nanoporous materials; i.e. materials with pores below 100 nm, with complex and tailorable structural and surface properties. These next-generation adsorbents clearly have the potential to significantly improve the efficiency, performance and durability of materials used in cutting-edge technologies such as energy storage devices, heterogeneous catalysts, bio-medical technologies and so on. In order to support and optimize these design efforts, it is imperative to accurately characterize their physico-chemical properties. Thorough understanding of material texture, tortuosity, pore network, pore size and volume and surface area is crucial to explain their overall performance. In this presentation, key aspects and ongoing challenges regarding the state-of-the-art characterization of such materials are reviewed by applying a well-spread experimental technique, i.e., gas physisorption at cryogenic temperatures, coupled with advanced theoretical methods for data analysis.