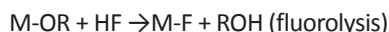


Nanoscopic metal fluorides: A new world of fluoride-based materials

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The lecture will focus on nanoscopic metal fluorides and hydroxide fluorides prepared via a recently explored fluorolytic sol-gel synthesis approach. Metal fluoride phases obtained via this route exhibit distinctly different properties as compared with their classically prepared homologues. Due to their unique optical and catalytic properties nanoscopic metal fluorides are of great interest for several applications in optical materials, photonics, catalysis, ophthalmology, ceramics etc. An essential pre-condition for their use in these fields is their homodispersed particle sizes on a low nanometer scale. MF_n-materials fitting these requirements can be obtained according to the so-called “fluorolytic” sol gel synthesis:



These nanoscopic metal fluorides exhibit particle sizes below 10 nm, high specific surface areas ranging from 200 up to 600m²g⁻¹ due to an extremely high degree of structural disorder

and hence, show chemical and physical behaviour distinctly different from their classical counterparts. Based on such nano-metal fluorides, excellent catalytic performances have been achieved in several reactions for the synthesis of fine chemicals; corundum ceramics with improved mechanical and optical properties, antireflective layers with almost 100% transmission and new inorganic-organic composite materials can be obtained.

Speaker Biography

Erhard Kemnitz has received his doctoral degree in 1977. In 1988 he became an assistant professor and received a full-time tenure track in 1994, from both at the Humboldt-Universität zu, Berlin. His main research interests cover the synthesis and characterisation of nanoscopic metal fluorides for applications in the field of heterogeneous catalysis, optics, ceramics, surface coating etc. He published about 450 papers, 11 review articles, 12 books and/or book chapters, and filed more than 20 patents. His h-index is 41 and he has been serving as an editorial board member of several reputed Journals.

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