



Graduate Physics Seminar
23 December 2013 from 2 PM

University of Nova Gorica
Vipavska 13, Nova Gorica
SP-1 Lecture Room

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Synthesis and characterization of manganese functionalized silica aerogels

Abstract

Porous silicates are used as catalytic supports in chemical reactions. Immobilization of transition metals into their framework via different synthesis procedures generates different types of catalytically active sites. Manganese is one of the most intensively used elements in homogeneous oxidation catalysis. Incorporation of manganese into porous silicates generates catalytically active redox centers. Manganese-functionalized porous silicates are excellent candidates for applications in environmentally friendly heterogeneous oxidation catalysis due to their structural characteristics, hydrothermal stability as well as non-toxic and cost-effective nature. It was shown recently that the use of heterogeneous catalytic system based on manganese-functionalized porous silica catalyst (named KIL-2) is a highly promising alternative to conventionally used iron-based catalysts in catalytic water cleaning. However, MnKIL-2 is not recyclable, because of the manganese leaching from the silicate support. The problem could be solved using aerogels as silicate supports for manganese.

Synthesis and characterization of MnKIL-2 as a case study and an introduction to the synthesis and characterization of manganese functionalized silica aerogels will be presented in the seminar.