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## 2D mesoporous silicas with hexagonal pore ordering and organic groups containing sulfur atoms

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The purpose of the presented studies was to develop simple and efficient methods for obtaining SBA-15 and MCM-41 materials (2D) with high degree of pore ordering, and containing sulfur atoms, as well as to investigate the influence of synthesis method and reaction conditions on their catalytic activity. Organic sulfur-containing functional groups were introduced into the ordered siliceous matrix by two different procedures, namely "one-pot" synthesis or post-synthetic grafting. The received formulations were evaluated in the terms of physicochemical properties. Low-angle X-ray diffraction (XRD) technique, low-temperature nitrogen adsorption-desorption measurements and transmission electron microscopy were applied for the mesoporosity confirmation in the obtained materials. Moreover, selected samples were subjected to the elemental analysis in order to confirm an incorporation of heteroatoms into/onto the siliceous matrix. In addition, MCM-41 and SBA-15 materials containing sulfur atoms were tested as catalysts in the Friedel-Crafts alkylation. XRD patterns reveals reflexes typical for MCM-41 or SBA-15 mesoporous structure. According to the IUPAC recommendations, nitrogen adsorption-desorption isotherms obtained for all synthesized silicas may be ascribed to type IV(a), characteristic to the mesoporous samples. Results of the elemental analysis clearly point out that synthesis methods employed for obtaining modified mesoporous materials allow to incorporate organic groups containing sulfur. Synthesized materials were successfully applied as acidic catalysts in the Friedel-Crafts alkylation of anisole with benzyl alcohol, resulting in significant conversion and high selectivity to the desired products.

### Biography

Izabela Nowak is a Professor at the Faculty of Chemistry, Adam Mickiewicz University in Poznan (AMU). She wrote her MSc thesis at the University of Reading (UK), where she was granted a scientific fellowship within TEMPUS. She received a DSc degree from AMU, whereas Postdoctoral training at the University of Liverpool (industrial grant). She stayed at the Kent State University (OH, USA) as a Fulbright Senior Fellow (2003) and Kościuszko Foundation Grantee (2007). The American Chemical Society recognized her in 2011 as "Distinguished Women in Chemistry/Chemical Engineering". The total number of her publications in peer-reviewed journals is more than 70.

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