

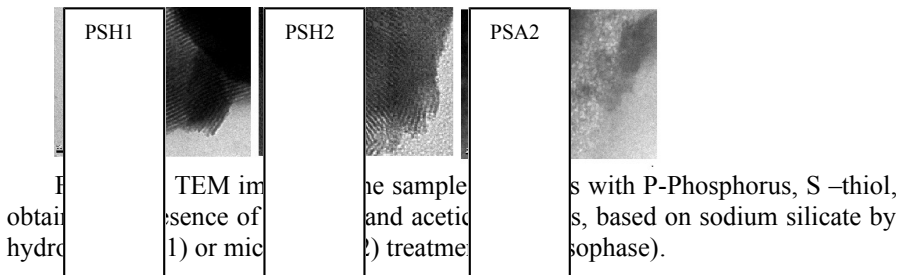
TEM study of the bifunctional silica structures obtained by template method

O.A.Dudarko^{1,2}, V.V.Sliesarenko¹, M.Jaroniec², Yu.L.Zub¹

Chuiko Institute of Surface Chemistry NAS of Ukraine, 17, General Naumov str., Kyiv 03164 Ukraine. odudarko80@gmail.com

²Department of Chemistry, Kent State University, Kent, OH 44242, USA

The study of the microstructure of various types of sorbents and catalysts by TEM method and X-ray analysis improve evidence of their porous structure [1, 2]. The aim of this work to study by TEM of the influences of different factors on structure of bifunctional phosphor-thiol-containing organosilicas obtained by template method.



The micrographs of samples (Fig.1) indicate the presence of a hexagonal structure for all samples except PSA2 (pH of reaction mixture =3.75) that indicate an influence of acidity on structure-formation. The distances between the centers of the pores for samples - PSH1 and PSH2 (7.1 and 7.3nm, relatively) (pH = 2). The structure of PSA2 is similar to the so-called nanofams. This study suggests that not only the composition of reagents and method of synthesis, but also the choice of catalyst and the acidity of the medium affect on the formation of structures.

DOA thanks Fulbright Scholar Program for financial support of this work (ID 68120263, 2012-2013).

1. O. A. Dudarko *et al* Microwave-assisted and conventional hydrothermal synthesis of ordered mesoporous silicas with P-containing functionalities // Coll & Surf - A: Physicochem. Eng. Aspects - 459 -2014. - P. 4-10.
2. O. A. Dudarko *et al* Synthesis of mesoporous silica-tethered phosphonic acid sorbents for uranyl ions from aqueous solutions // Coll and Surf - A:

Physicochem. Eng. Aspects -482 -2015. - P. 1-8.