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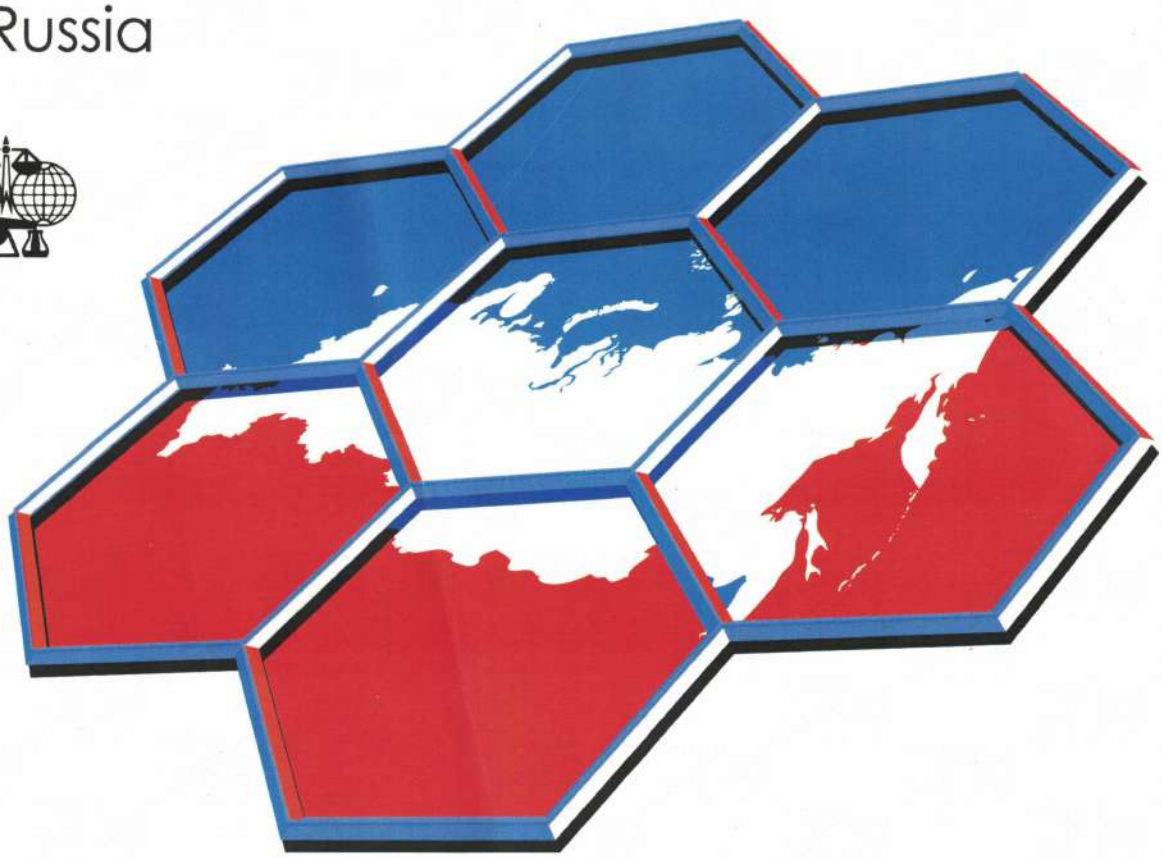

# Book of Abstracts

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# MESOPOROUS AROMATIC FRAMEWORKS: EFFICIENT SUPPORTS FOR HETEROGENEOUS CATALYSTS

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Development of novel efficient and selective regenerable heterogeneous catalysts is one of the major challenges in chemistry. Thus, the use of metal nanoparticles could enhance the performance of catalysts due to improved surface area and the presence of high-active centers on their surface. However, the big issue is to stabilize nanoparticles and prevent their agglomeration. This could be achieved by immobilization of nanoparticles in pores of porous materials. Restricting the migration of nanoparticles, porous materials serve as carrier and support for them.

The novel class of supports for catalysts is porous aromatic frameworks (PAFs). This class of polymers networks possess robustness and scalability, the materials have good thermal and excellent chemical stability (e.g., in the presence of strong acids and bases) and have high surface area. Moreover, due to aromatic nature, porous aromatic frameworks could be functionalized using facile methods, what could be useful for synthesis of high-selective catalysts. Such materials have been used as sorbents for organic vapors,[7] for the recovery of organic compounds from water,[8] and in heterogeneous catalytic systems.[9]

Recently we reported the application of PAFs in synthesis of noble-metal (Ru, Pt, Pd) hydrogenation catalysts, molybdenum catalysts PAF-$Mo_x(CO)_y$ and bimetallic sulfide catalysts PAF-Ni-Mo/W-S. The obtained catalysts possessed high activity in various reactions, including hydrogenation of unsaturated compounds, hydrocracking, hydrodearomatization and hydrodesulfurization of light cycle oil and naphthalenes. Moreover, the structural properties of the support influence on the properties of catalyst: thus, for noble-based catalysts the size-selective effect was observed in hydrogenation of aromatic substrates, and in case of PAF-Ni-Mo/W-S catalysts the products distribution of the LCO hydroconversion strongly depend on the nature of support.

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