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Editorial

Advances in Nanoporous Materials

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Nanoporous materials emerged as potentially promising materials because of their high surface area, tunability in pore sizes, and ease of functionalization, thus finding applications from energy to sensing, devices, and medicine. This special issue is devoted to the recent developments in the synthesis of nanoporous materials that include innovative synthetic routes to fabricate them, structural/morphological characterization, properties, and potential applications in various areas of interest. In the field of nanoporous material, nanoporous silicon and nanoporous thin films are discussed, namely, the influence of wet chemistry and electrochemical methods in the fabrication of these materials. Yu. M. Spivak et al. found that alteration in the surface properties of the silicon results in different features of the material. The obtained results demonstrated a new approach to a wide range adjustment of Si porosity and surface properties to address various specific goals. Also, this work highlighted the surface functionality features of porous silicon prepared and treated in different conditions. The paper by H. Zhang et al. demonstrates a solvent-free approach based on microwave technique for the design of microporous metal-organic framework. This study provides advancement in the synthetic methodology instead of employing traditional wet-chemical based approaches. This paper also opens up the new understanding for the electromagnetic wave absorption capability of metal ions which plays a key role in the successful conversion of reactants to MOFs and merits towards further investigation. A. Pastre et al. presented an integrated approach based on colloidal lithography and electroless deposition technique to produce porous gold films. By this approach, the porosity of the materials can simply be controlled by varying the diameters of polystyrene beads and deposition materials and can be extended to a wide range of materials. The fabrication of porous gold films by an original "bottom-up" approach through combined PS beads templating and gold electroless deposition methods has been achieved. All the techniques employed in the fabrication of the PGFs are totally wet-chemistry processes. The paper titled "Template Transfer Nanoimprint for Uniform Nanopores and Nanopoles" was presented by J. Li et al. They have demonstrated a simple and large-scale process based on template transfer nanoimprinting method to fabricate Pt nanorods array. This process enables large-scale fabrication of uniform nanostructures (nanopores or nanorods) based on the template transfer process in which both robust metallic amorphous alloys and thermosetting polymers can be used as constructing materials of master moulds. Pt-based materials have already been investigated with very impressive and promising applications in the renewable energy technologies such as fuel cell. The paper by T. Woignier was very focused on the nanoporous glasses for nuclear waste containment. It addresses the problem of the synthesis of new porous matrices in which the reactivity of the chemical species in the matrix is extremely important for the physical properties of the final two-phase materials. This special issue provides a comprehensive update in the field of nanomaterials, especially highlighting the benefits and risks related to the use of nanomaterials. Finally, an extensive review article on nanoporous anodic

alumina (NAA) and various fabrication techniques and their applications in the biosensing area makes this special issue a very important milestone.

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