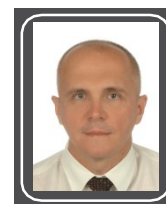


Computer analysis of the adsorption process on metal-organic frameworks

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Abstract

In recent years, with the increasing use of adsorption processes, both in technology, environmental protection and everyday life, better new adsorbents have been sought, and one of the most promising materials that can be used in these processes are MOF organometallic materials. The work presents original results of MOF Basosiv M050 metal-organic frameworks material structure and adsorption processes occurring on its surface. The studies were conducted on the basis of adsorption isotherms of N₂, CO₂, and CH₄ analysed separately as well as on the basis of analysis of two and three isotherms simultaneously, using a unique LBET method. The results presented in this article confirmed the high usability of LBET method in the study of adsorption processes occurring on the surface of Basosiv M050 material, as well as in the analysis of its structure. As it has been shown, the application of the LBET method enables precise determination of the structure of the studied material and mechanisms of adsorption processes taking place in its structure, which in turn ensures the possibility of optimal selection of its preparation and effective use in a given adsorption process.

Biography

Dr. hab. eng. Mirosław Kwiatkowski in 2004 obtained Ph.D. degree at the AGH University of Science and Technology in Krakow (Poland), and in 2018 D.Sc. degree at the Wrocław University of Technology (Poland). In addition, he obtained a certificate of completion of postgraduate studies: Professional Research and Development Project Manager at the Krakow University of Agriculture (Poland), Research and Development Project Manager at the University of Economics and Innovation in Lublin (Poland), and Electrical Energy Markets at the AGH University of Science and Technology in Krakow (Poland). His published work includes more than 45 papers in reputable international journals and 90 conference proceedings. He is the editor in chief of The International Journal of System Modeling and Simulation (United Arab Emirates), an associate editor of Micro & Nano Letters Journal (United Kingdom) and a member of the editorial board of international journals as well as a member of the organizing committees many international conferences in Europe, Asia and USA. Dr. hab. eng. Mirosław Kwiatkowski is also a regular reviewer in a most reputable scientific journals.

Publications

1. Late Glacial Atmospheric Radiocarbon Variations Recorded in Scots Pine (*Pinus sylvestris* L.) Wood from KwiatkÓw, Central Poland
2. Energy, economic and ecological problems of waste management
3. THE RECORD OF CATASTROPHIC FLOOD IN THE ROMAN PERIOD IN KOŁO BASIN (CENTRAL POLAND)
4. ASSESSMENT OF THE SUBSIDENCE RATIO be BASED ON SEISMIC NOISE MEASUREMENTS IN MINING TERRAIN
5. The lake basins near kalisz in the light of pollen analysis (Wielkopolska Lowland)
6. The Beloveža Formation of the Rača Unit in the Beskid Niski Mts. (Magura Nappe, Polish Flysch Carpathians) and adjacent parts of Slovakia and their equivalents in the western part of the Magura Nappe; Remarks on the Beloveža Formation - Hieroglyphic Beds
7. Environmental conditions as a key factor in the functioning of wells at a settlement from the Roman period of the Iron Age
8. Transplantational microchimerism – an introduction to a tolerance induction or an organ donor recipient's epiphenomenon?
9. Authigenic, bacterial heavy metal sulphides and oxysulphides polluting Przemsza river sediments, Zn-Pb and black coal mining area, Poland

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