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Review of "Adsorption Science and Technology"

Proceedings of the Second Basin Conference on Adsorption Science and Technology, May 14–18, 2000; edited by Professor Duong D. Do, published by World Scientific, Singapore; 736 pages.

This is an impressive volume, containing more than 140 papers from most of the world's experts in the field of adsorption. The topics are diverse, ranging from fundamentals to novel measurement techniques to practical applications. Perhaps most importantly, these papers are uniformly well done, both technically and typographically, and the vast majority are innovative as well as interesting. The editor has assembled an excellent set of broad and strong contributions, and has done a superb job of preparing the proceedings.

Some of the many topics are mentioned in the following paragraphs. Of course, this simple summary cannot do justice to the subjects covered, let alone the content of the papers. Clearly, this is a volume that would be valuable to experts in the field, since it contains very up-to-date results of high quality research. In addition, and somewhat unexpectedly, this volume may be valuable to novices in the field, since it covers such a broad spectrum of subjects and each is introduced in a way that is accessible to laypersons.

Papers on fundamentals ranged from computer modeling (molecular orbital methods, statistical thermodynamics, Monte Carlo simulations, etc.) to derivations of new single-component and multicomponent equilibrium models, structure-property relationships, and the effect of magnetic field gradients on adsorption.

In contrast, papers on measurement techniques included direct measurement of transient concentration profiles via MRI, high pressure equilibrium and kinetic data analysis, surface diffusion, interference microscopy, small-angle X-ray scattering, FTIR spectroscopy, electromagnetic and oscillometric-gravimetric methods, and coupled TGA and DSC analysis.

Finally, the papers on practical applications ranged from unusual or novel materials (egg shell membrane, rice field soil, copper-impregnated β zeolite, activated carbon fiber, MCM-41, pillared clays, nanotubes, carbon whiskers, manganese oxide, palm oil ash, mesoporous silica, biomass, etc.) to processes or applications such as PSA with layered beds, methane storage, chiral separations, heat pumps, air conditioning, and energy storage, and CO_2 sequestration in coal mines.