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/ Caron, A. / Hirsekorn, S. / Rabe, U. / Natter, H. / Hempelmann, R. / Birringer, R. / Arnold, W. -- Mechanical Properties of Nanomaterials Examined with a NI-AFM / Vehoff, H. / Yang, B. / Barnoush, A. / Natter, H. / Hempelmann, R. -- Equilibrium and Nonequilibrium Behaviour of Ferrofluids - Experiments and Theory / Embs, Jan Peter / Huke, Björn / Leschhorn, Andreas / Lücke, Manfred -- Combinatorial Fabrication of Thin Film-Libraries and Evaluation of their Piezoelectricity by Ultrasonic Piezo-Mode Imaging / Rende, Daniela / Schwarz, Kerstin / Rabe, Ute / Maier, Wilhelm F. / Arnold, Walter -- Back Matter

Sommario/riassunto

Progress in Physical Chemistry is a collection of recent "Review Articles" published in the "Zeitschrift für Physikalische Chemie". The aim of a "Review article" is to give a profound survey on a special topic outlining the history, development, state of the art and future research. Collecting these articles the Editors of Zeitschrift für Physikalische Chemie intend to counteract the expanding flood of papers and thereby give students and researchers a means to obtain fundamental knowledge on their special interest. The second volume of Progress in Physical Chemistry is a collection of thematically closely related minireview articles written by the members of the Collaborative Research Centre (SFB) 277 of the German Research Foundation (DFG). These articles are based on twelve years of intense coordinated research efforts. Central topics are the synthesis and the characterization of interface-dominated, i.e. nanostructured materials, mainly in the solid state but also as nanoparticles / nanorods in liquid dispersion (ferrofluids) or as gas / liquid in mesoporous host systems (thermodynamics in confinement). For the synthesis physical vapour deposition (PVD), chemical vapour deposition (CVD), electrochemistry, and various sol-gel and microemulsion routes are employed. For the characterization a broad spectrum of methods from physics, materials science and physical chemistry is used, like scattering methods, nuclear hyperfine interaction methods and different types of scanning probe microscopy. The correlation between, on the one hand, the nanostructure and, on the other hand, the thermodynamics, the magnetic and mechanical properties specific to the nanometre scale as well as the theoretical modelling of the same are in the focus of the scientific interest.