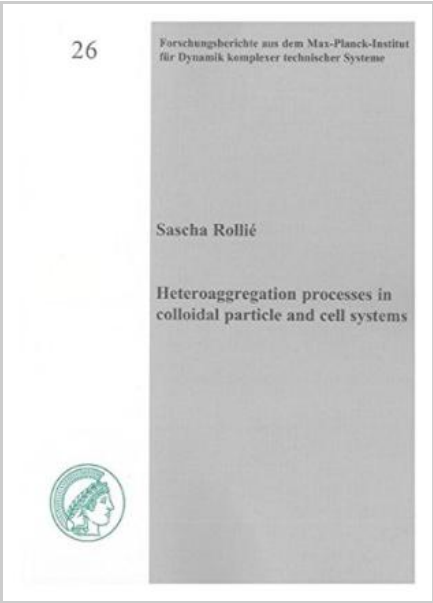

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Heteroaggregation processes in colloidal particle and cell systems

By Sascha Rollié

Shaker Verlag Aug 2010, 2010. Buch. Book Condition: Neu. 21x14.8x cm. Neuware - Motivated by the selective adsorption of functionalised drug carrier particles to certain cell types for medical applications this thesis investigates fundamental heteroaggregation phenomena under special consideration of the dynamic behaviour in physical and biological model systems. The adsorption of antibodies as possible functional moieties to receptors on cell surfaces represents an essential first step in a series of further transport limitations for the cellular uptake of functionalised drug carrier particles. To establish suitable scientific methods for the analysis of selective and competitive heteroaggregation processes, the specific interaction and heteroaggregation of multiple colloid constituents was studied in physical particle systems first. Experimental methods primarily include flow cytometry and diverse microscopic techniques, while simulations are based on population balance equations with kernel models rooting in classical colloid science. Both approaches were transferred to biological systems to achieve a more rigorous description of drug delivery dynamics and efficiency. This could prove valuable for future optimisation efforts. 163 pp. Englisch.

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