

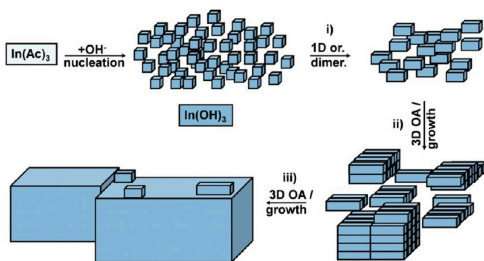
ナノ・コロイド粒子が形成する配向凝集体 そのメカニズム・構造・物性

Flocculation and oriented aggregation - mechanisms, structures and properties

Prof. Dr. Wolfgang Peukert
Institute of Particle Technology,
Erlangen University, Germany



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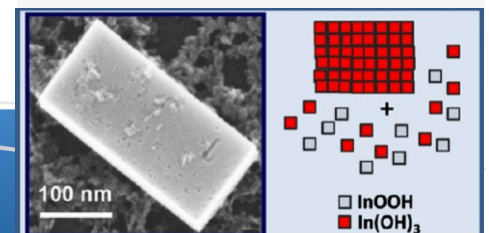
Starting with fractal-like clusters for which we studied the hydrodynamic behavior in settling experiments we move on to more regular anisotropic structures which are formed by oriented aggregation.

We found a number of quite fascinating cases where small clusters aggregate in a regular way, e.g. ZnO quantum dots from nanorods, ellipsoids or nanoporous single crystalline spheres depending on the boundary conditions or InO(OH) which aggregates from cubes to rods, to bundles of rods and from there to cubes again. This mechanism seems to close to gap between flocculation where attachment of building blocks occurs in a statistical way and crystallization where the building blocks are incorporated into the growing crystal in a very regular way.

For proteins both aspects may occur depending on the interplay of thermodynamic driving force and proteins interactions.

Keywords

ナノ粒子・コロイド粒子
フラクタルクラスター
クラスター凝集
配向凝集
異方性構造
凝集プロセス
結晶成長プロセス
ZnO 量子ドット
InO(OH)
ナノロッド
ナノキューブ
ナノポーラス
タンパク質結晶



世話人：生命環境系 山下祐司 (yamashita.yuji.gm@u.tsukuba.ac.jp)
テニュアトラック普及・定着事業 <http://ttweb.sec.tsukuba.ac.jp/>
協賛 リサーチユニット生物資源コロイド工学、国際地縁フォーラム