

# 特別講義 (Special Lecture)の御案内



日時：2014年7月7日(月)

13:00 ~ 15:00

場所：国際棟 セミナー室

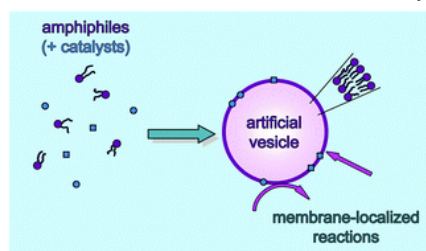
演者：Prof. Dr. Peter Walde

ETH Zürich, Inst. für Polymere

スイス連邦工科大学(ETH Zurich) 高分子化学科のP. Walde教授は、リポソーム/ベシクルを核としたChemistryの分野で精力的に研究活動を進めておられます。リポソーム膜を始めとする自己集合系に由来する創発的特性に関する最先端の研究内容を紹介して頂きます。

## Emergent Properties Arising from the Assembly of Amphiphiles

This lecture deals with artificial vesicles and their membranes as reaction promoters and regulators. Among the various molecular assemblies which can form in an aqueous medium from amphiphilic molecules, vesicle systems are unique. Vesicles compartmentalize the aqueous solution in which they exist, independent on whether the vesicles are biological vesicles (existing in living systems) or whether they are artificial vesicles (formed in vitro from natural or synthetic amphiphiles). After the formation of artificial vesicles, their aqueous interior (the endovesicular volume) may become – or may be made – chemically different from the external medium (the exovesicular solution), depending on how the vesicles are prepared. The existence of differences between endo- and exovesicular composition is one of the features on the basis of which biological vesicles contribute to the complex functioning of living organisms. Furthermore, artificial vesicles can be formed from mixtures of amphiphiles in such a way that the vesicle membranes become molecularly, compositionally and organizationally highly complex, similarly to lipidic matrix of biological membranes. All the various properties of artificial vesicles as membranous compartment systems **emerge** from molecular assembly as these properties are not present in the individual molecules the system is composed of. One particular emergent property of vesicle membranes is their possible functioning as **promoters** and **regulators** of chemical reactions caused by the localization of reaction components, and possibly catalysts, within or on the surface of the membranes.



連絡先：馬越 大 (大阪大学・基礎工・化学工学)

TEL & FAX: 06-6850-6287 E-mail: [umakoshi@cheng.es.osaka-u.ac.jp](mailto:umakoshi@cheng.es.osaka-u.ac.jp)