

FRANCE – HONG KONG
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LECTURE SERIES

*A series of high-profile lectures
under the auspices of
the French Academy of Sciences*

Date: March 11, 2009 (Wednesday)
Time: 4:30pm
Venue: Multi-Media Conference Room
4/F, Cheng Yick-chi Building
City University of Hong Kong
Enquiries: Miss Annie Yeung
Tel: 2788 8069
Fax: 2788 9940
Email: yeunghy@cityu.edu.hk

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Bio-inspired Nanostructured Materials

by

Jacques LIVAGE

Professor at the Collège de France

Member of the French Academy of Sciences

Member of the National Academy of Sciences of India



Abstract:

Nature offers a wide variety of nanostructured biomaterials that are highly competitive with our most advanced materials. Diatoms for instance are known to build a silica skeleton that exhibits an incredible variety of genetically controlled architectures. Moreover, these micro-algae make their bio-glasses at room temperature while our glasses are made from molten silica sand heated well above 1000°C. This is a real challenge for materials scientists who are trying to mimic nature in order to produce better advanced nanomaterials.

New chemical syntheses called 'chimie douce', or 'soft chemistry', have been developed during the past decades allowing the low temperature formation of glasses and ceramics. They open new possibilities for materials sciences and biotechnologies. Hybrid organic-inorganic nanocomposites are now currently produced. They are highly transparent and find applications for the realization of optical devices. Enzymes and antibodies retain their bioactivity in glass electrodes allowing the realization of biosensors and immuno-assays. Living cells trapped within glass micro-capsules can be used for the production of drugs and even for cell transplantation experiments.

This lecture presents an overview of the most recent developments in the field of bio-inspired nanostructured materials.

All are Welcome