



SoftMatterWorld Newsletter

February 2010, Issue 14

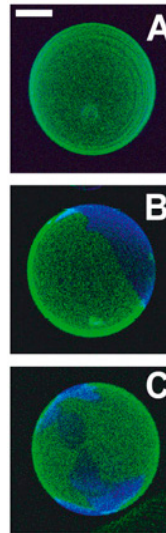
Dear Soft Matter Colleagues,

We are moving right along into the new year with more news on latest conferences and research. The new newsletter seems to have been a great success and our mailing list has been growing since it was sent out. Keep up the great work and be sure to pass this newsletter on to fellow researchers. Remember, feel free to print it out and post it in your classroom or laboratory.

Research Group of the Month: M³ Microforces and Membranes

This month we have chosen the **Carlos Marques M3 Microforces and Membranes** group located in Strasbourg at the Charles Sadron Institute. The "M3 Membranes and Microforces" team was founded in January 2005 by Dr. Carlos Marques. Its 17 members are bound by a common interest in complex interfaces and in particular self-assembled phospholipid systems. They focus on the behaviour of these systems from a physical point of view, with interests in both experiment and theory, and share a common experimental know-how, served by a strong command of micromanipulation techniques and measurement of microforces.

They have developed and used a wide spectrum of experimental techniques adapted to their systems, some of them being unique. They probe the dynamics and the structure of interfaces from the nanometer scale up to the millimeter scale by combining radiation scattering and optical microscopy. They monitor the response of these systems to various applied forces and fields with force measurements in confined situations and micromanipulation.



Confocal microscopy images of GUVs made from SM and DOPC (1:1) containing different mole fractions of cholesterol. Image taken from "Combining Fluorescence Lifetime and Polarization Microscopy to Discriminate Phase Separated Domains in Giant Unilamellar Vesicles." *Biophysics Journal*. December 2008;95.

Present research of the M3 team focuses on:

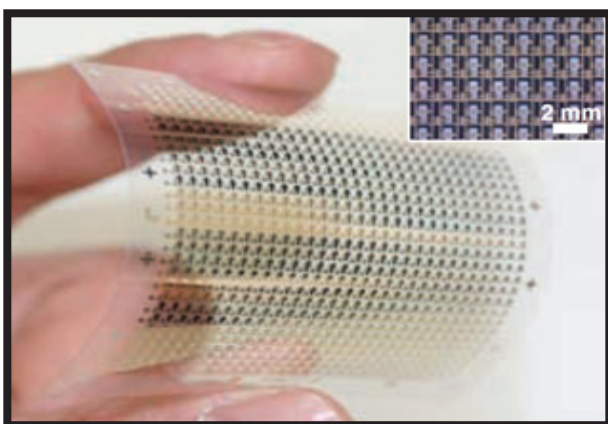
- Lipid bilayers: giant vesicles and supported membranes.
- Surfaces: direct measurement of surface forces and adhesion kinetics
- Out of equilibrium systems: morphology, mechanics and dynamics.

Visit the website in our [Global Network](#) section or directly [here](http://ludfc39.u-strasbg.fr/); <http://ludfc39.u-strasbg.fr/>

Giant Vesicles Under Oxidative Stress

Marques CM, et al. Biophysical Journal. 2009;97:1362-1370.

This featured article comes straight from the publications of the M3 Microforces and Membranes Carlos Marques group. In this work, the photoinduced effects of a new porphyrin derivative incorporated in GUVs of palmitoyl oleoyl phosphatidylcholine (POPC) are investigated with confocal and fluorescence microscopy. This new photosensitizer allows for more controlled studies on the effect of lipid peroxidation. Visit the [publications section](#) of the M3 website to read more; <http://ludfc39.u-strasbg.fr/spip.php?rubrique12>



Photograph of an organic floating-gate transistor sheet comprising 26 by 26 memory cells. The inset shows a magnified image of the array. *Image taken from Siegfried Bauer et al. Organic Nonvolatile Memory Transistors for Flexible Sensor Arrays. Science. 2009;326:1517.*

Organic nonvolatile memory transistors

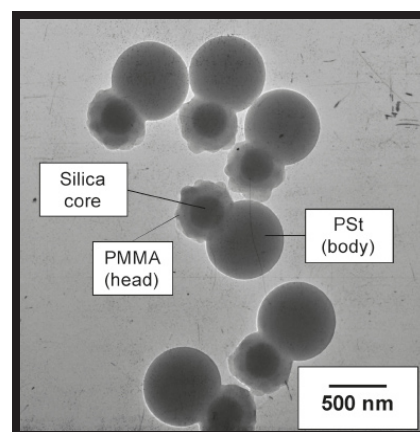
Siegfried Bauer et al. Science. 2009;326:1517.

Siegfried Bauer (Johannes Kepler University) and fellow researchers integrate a flexible array of organic floating-gate transistors with a pressure-sensitive rubber sheet, they have realized a sensor matrix that detects the spatial distribution of applied mechanical pressure and stores the analog sensor input as a two-dimensional image over long periods of time. Siegfried Bauer is a member of our global network and mailing list so make sure to read up on it in the [Latest Research](#) section; <http://www.softmatterworld.org/research/>

Synthesis of hollow silica dumbbells with movable inner cores

Arnout Imhof, Alfons van Blaaderen et al. Langmuir. December 2009.

Arnout Imhof and Alfons van Blaaderen (University of Utrecht) and fellow researchers create hollow asymmetrical silica dumbbells with movable silica cores. By changing the sizes of the spheres or compartments that make up the dumbbells, there is freedom in the anisotropy of the design of the shells. The ability to address the movable cores with external fields could prove to be an interesting breakthrough in the progress of hollow nanomaterials. To read more visit the [Latest Research](#) section; <http://www.softmatterworld.org/research/>



TEM image of asymmetrical dumbbells composed of PMMA-coated silica (head) and PSt (body). *Image taken from Arnout Imhof, Alfons van Blaaderen et al. Langmuir. December 2009.*

Physics 2 Life: a workshop and school in biological physics

Physics 2 Life: A workshop and school on biological physics, is being brought to us from the same institute that held ISWOLD 2010, advertised last month. The conference is being held May 23-27, 2010 at the Weizmann Institute of Science, Rehovot, Israel. Over the past decade a broad scientific discourse has emerged across traditional fields of biology, chemistry, and physics. Advanced techniques and instrumentation have revolutionized quantitative biology, while the exploration of fundamental mechanisms underlying biological function has inspired new and complex challenges in the exact sciences. This workshop and school will explore several major themes

P P E P P D 2 0 1 0



The 12th international conference on Properties and phase equilibria for product and process design, PPEPPD, is being held on May 16-21, 2010, Suzhou, Jiangsu, China. The conference endeavors to provide an effective forum for academic and industrial researchers to meet and communicate on the status and future trends in properties and phase equilibria important to the design of products or process-

of the physics-biology interface, introducing topics of cellular biophysics, systems and networks, single molecule studies, biomaterials, and neuroscience. Graduate students, postdocs, and young researchers from all disciplines are welcome including participants from outside Israel. The program will consist of traditional lectures as well as informal discussion groups. There is no registration fee and on-campus housing and meals will be provided in addition to a number of travel subsidies. Registration is open until March 1st, 2010. Visit the [website](http://www.weizmann.ac.il/conferences/Physics2Life/) to read more; <http://www.weizmann.ac.il/conferences/Physics2Life/>

es. The focus is on products and processes related not only to the traditional oil, gas and chemical industries, but also to the pharmaceutical, food, plastics, textile and cement industries. Moreover, biotechnology, energy, environmental and sustainable development technologies are important topics of the conference. Registration is open, so visit the [PPEPPD website](http://www.ppeppd2010.cn/) to read more; <http://www.ppeppd2010.cn/>

We hope you enjoy browsing softmatterworld.org and come back soon
Linda S. Hirst and Adam Ossowski

SoftMatterWorld.org

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