

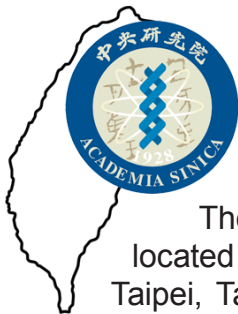
SoftMatterWorld Newsletter

the web's foremost resource on soft condensed matter

August 2010, Issue 20

Dear Soft Matter Colleagues,

Next month there will be a Noticeboard Bulletin included with the newsletter so be sure to submit any openings if you want them advertised. There are new autumn conferences posted in the Latest News section of the website so register while you can!



Lin Research Group: Soft Condensed Matter and 3D Cell Culture Laboratory

The **Lin Research Group** is located at the **Academia Sinica**, Taipei, Taiwan. The group is led by Dr. Keng-hui Lin, a assistant research fellow in the Research Center for Applied Science. The primary focus of the group is self-assembly phenomena through a highly interdisciplinary research program. They design and fabricate building blocks in different forms: microspheres, emulsions, foam and polymers. Dr. Lin emphasizes that the importance of self-assembly research lies in the fact that it "is the key to the bottom-up approach of nanotechnology."

One of the group's recent projects involves constructing 3D ordered porous structures by self-assembly. These structures are then used as tissue engineering scaffolds in which cells can be cultured in-vitro. The ordered porous materials provide a novel platform to study the interaction between cells and 3D micro-environments. These scaffolds provide a 3D biomimetic environment that ultimately is necessary to grow a *functional* tissue or or-

gan - something which is impossible in 2D environments such as petri dishes or flasks.

Other research interests of the group include large domains of 2D colloidal crystal assemblies and the development of DNA

grafted colloidal particles

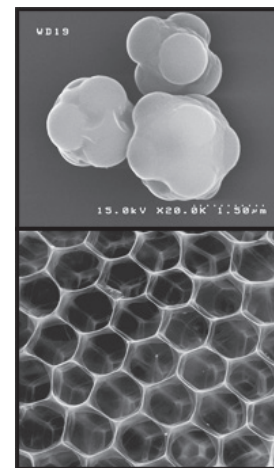
in order to study polymer behavior at the solid-liquid interface. You can see more great images from Dr. Lin's research in the Pictures and Research sections

of her website. In addition there is also a dedicated 'wiki' page with some great resources for students and researchers.

www.phys.sinica.edu.tw/~softlab/index.php?id=20

-top image: SEM image of colloidal microspheres.

-bottom image: SEM image of foam scaffold. To read more about this image refer to "Fabricating Scaffolds by Microfluidics" on page 2.

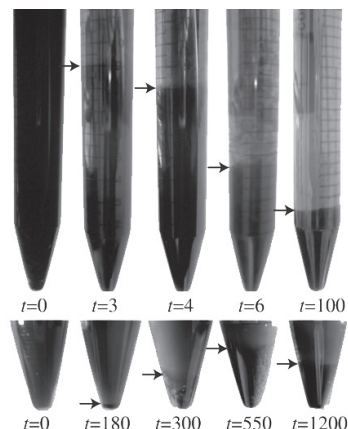


Latest Research

Dispersants Delay Sedimentation in Colloidal Asphaltene Suspensions

S. Hashmi, L. Quintiliano, and A. Firoozabadi. Langmuir 2010, 26(11), 8021–8029

Asphaltenes, among the heaviest components of crude oil, can become unstable under a variety of conditions in which they will precipitate and sediment out of solution. This is often believed to be one of the leading causes of petroleum fouling. In this report, researchers present sedimentation measurements for a system of colloidal scale asphaltene



particles suspended in heptane. The results show that by adding dispersants to the suspension it can improve the stability of the system and mediate the transition from a power-law collapse in the sedimentation front to a rising front. Read more [here](#).

-Sedimentation levels of an asphaltene suspension in heptane. Label 't' indicates the time in minutes after fully mixing the sample and the arrows indicate the level of the shock front h.

Fabricating Scaffolds by Microfluidics

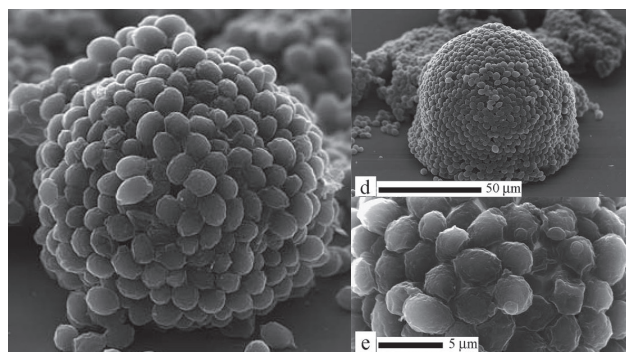
K.Chung, N.Mishra, C.Wang, F.Lin, and K.Lin, Biomicrofluidics 3.022403.2009.

In this paper, Dr. Keng-hui Lin (head of this month's featured research group) and colleagues demonstrate for the first time a technique in which microfluidics are used to fabricate tissue engineering scaffolds with uniform pore sizes. They investigate both the bubble generation of the microfluidic device and the application of the foam as a tissue engineering scaffold in which it was used to culture chondrocytes.

Directed Assembly of Yeast Cells

Marie-Laure Brandy, et al. Soft Matter, 2010, 6, 3494-3498. DOI:10.1039/C0SM00003E

Researchers report the fabrication of yeastosomes—novel multicellular assemblies, which consist of a spherical monolayer of living yeast cells held together by colloid interactions. The method is based on templating of microbubbles with cells coated with cationic polyelectrolyte and the layer-by-layer technique. It is demonstrated that the cells remain viable in the yeastosome structures. Yeastosomes and similar structures may find



-SEM images of yeastosomes after drying up a sample of the yeastosome suspension on a solid substrate.

applications in the development of novel symbiotic bio-structures, artificial multicellular organisms and in tissue engineering. Read more at [RSC Publishing](#).

The International Chemical Congress of Pacific Basin Societies - PacifiChem 2010



The 2010 **International Chemical Congress of Pacific Basin Societies (PacifiChem)**, will take place in Honolulu, Hawaii, USA, December 15-20, 2010. The conference aims to promote collaborations among Pacific Basin chemical scientists that improve the quality of life throughout the world and will feature a program highlighting recent contributions. The Congress will feature 237 symposia focusing on 13 specific scientific areas. Over 13,000 research papers will be presented in oral and poster format. There is an Online Technical Program available on the [website](#) where users can browse through the various symposia topics and plan a day by day itinerary.

Here are just a few of the soft matter symposia at PacifiChem 2010:

- 165-New Materials and Concepts for Next Generation Membranes
- 202-Liquid Crystals in Materials Chemistry
- 224-Polymer/Organic Solar Cells
- 226-Biological and Bio-Inspired Materials Synthesis and Assembly
- 242-Self and Directed Assembly of Small Molecules, Macromolecules and Colloids
- 265-Frontiers of Colloid and Interface Chemistry

<www.pacifiChem.org/>



MRS 2010 Fall Meeting

The **2010 Materials Research Society's Fall Meeting** will be held November 29–December 3 in Boston, Massachusetts. Forty-Nine different symposia will be the technical core of the meeting. To complement the scientific sessions, tutorials will be offered in several technical areas. Registration is open until November 12, 2010

<www.mrs.org/s_mrs/index.asp>

3-Year PhD position at Jožef Stefan Institute

As a part of the recently launched Marie Curie Initial Training Network **COMPLOIDS** (www.comploids.eu), a 3-year PhD student position focused on the physics of colloids is available immediately at Jožef Stefan Institute in Ljubljana, Slovenia (www.ijs.si). To read more visit the **NoticeBoard** section of the website.

<www.softmatterworld.org/noticeboard/>

We hope you enjoy browsing softmatterworld.org and come back soon



Linda S. Hirst and Adam Ossowski
SoftMatterWorld.org

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