

Symposium 15

Title: **Synthesis, Characterization and Applications of  
Bioinspired Nanomaterials**  
Chair/Co-Chair: Fiona Meldrum/Simon Hall  
Chair Assistant: A. LaBaff  
Location: 169 Snell

**Monday June 13, 2005**

Presiding: F. Meldrum, L. Gower, H. Matsui

Paper	Time	Title and Authors
15-01	11:00 - 11:40 AM	Non classical crystallization H. CÖLFEN
15-02	11:40 - 12:00 AM	Principles of Biominerals Architecture: Nucleation Mediated Self-Assembly Of Biomineral Crystals X.Y. LIU
15-03	12:00 - 12:20 PM	Noncovalent Functionalization of Carbon Nanotubes Using Designed Peptides G.R. DIECKMANN
15-04	1:30 - 1:50 PM	Manufacturing with Micro-organisms: Merging Biological Self-Assembly with Synthetic Chemistry to Yield Functional 3-D Nanoparticle Structures K.H. SANDHAGE, S.M. Allan, S. Shian, M.R. Weatherspoon, C.S. Gaddis, P.D. Graham, Y. Cai, M. Haluska, G. Ahmad, B. Church, R.L. Snyder, D. Landry, M. Hidebrand, and B.P. Palenik
15-05	1:50 - 2:10 PM	Preparation of Small Materials by Interface Selective Reactions Using Biological Materials as Templates Y.B. KIM
15-06	2:10 - 2:30 PM	Morphosynthesis of Complex Inorganic Forms Using Pollen Grain Templates S.R. HALL, H. Bolger, V. Swinerd, S. Mann
15-07	2:30 - 2:50 PM	From Organic Supramolecular Architectures to Inorganic Nanotubes J.H. JUNG

15-08	3:20 - 4:00 PM	GEPI: Genetically Engineered Polypeptides for Inorganics as Molecular Erectors in Nano and Nanobio-technology C. Tamerler, D. T. Schwartz, R. Samudrala, F. Baneyx, and M. SARIKAYA
15-09	4:00 - 4:20 PM	Biomimicking Drug Transport Systems A.J. KHOPADE
15-10	4:20 - 4:40 PM	Biomimetic Polymer Networks as Functional Components in Diagnostic and Therapeutic Microdevices J.Z. HILT
15-11	4:40 - 5:00 PM	Polymorphism of DNA-Anionic Liposome Complexes Reveals Hierarchy of Ion-Mediated Interactions G.C.L. WONG
15-12	5:00 - 5:20 PM	Directed Cell Migration via Chemoattractants Released from Degradable Microspheres X. ZHAO, S. Janib, H.B. Larmana, S. Gonzalez, D.J. Irvine

**Tuesday June 14, 2005**

Presiding: M. Sastry, S. Hall, M. Saikaya

15-13	10:30 – 11:10 AM	Biomimetic Processing through a Polymer-Induced Liquid-Precursor (PILP) M.J. Olszta, Y.-Y. Kim, X. Cheng, L. Dai, and L.B. GOWER
15-14	11:10 – 11:30 AM	Aragonite Growth on Carbonate-Free Single Crystal Substrates B. POKROY and E. Zolotoyabko
15-15	11:30 - 11:50 PM	Morphological Control of Inorganic Crystals F.C. MELDRUM, N. Hetherington, A. N. Kulak, E.Loste, R.J. Park and W. Yue

15-16	11:50 - 12:10 PM	Preparation, Characterization and Properties of Nanocrystalline Apatites: Significance for Bone Mineral and Biomaterials D. Eichert, S. Cazalbou, C. COMBES, H. Sfihi, C. Drouet, C. Rey
15-17	12:10 - 12:30 PM	From Amorphous Calcium Phosphate to Artificial Implants H. F.-MILHOFER
15-18	1:30 - 1:50 PM	Exploiting Oriented Aggregation to Control Nanocrystal Size and Shape R.L. PENN, A. Ratkovich, and D.J. Burleson
15-19	1:50 - 2:10 PM	Unusual Particle Shapes and Assembly Structures from Mineralized Hydrogel Microspheres – a Bioinspired Route to Hierarchical Structural Complexity D. WANG, M. Kuang, G. Zhang, and H. Möhwald
15-20	2:10 - 2:30 PM	Dendrimers and Diatoms: Bio-Inspired Routes to Functional Metal Oxides S.L. Sewell, K.C. Halfpenny and D.W. WRIGHT
15-21	2:30 - 2:50 PM	Bioinspired Nanomaterials Synthesis M. SASTRY and A. Ahmad
15-22	3:20 - 4:00 PM	Bionanotechnology Approach in Material Synthesis and Device Fabrication by Applying Peptide/Protein Assemblies H. MATSUI
15-23	4:00 - 4:20 PM	Self-Assembled Nanofibers and Tubes from Biobased Synthetic Amphiphiles G. JOHN
15-24	4:20 - 4:40 PM	Thermally Responsive Silica-Living Polypeptide Composite Particles S. Turksen, P. S. RUSSO, B. Fong, J. Qiu, E. Soto-Cantu
15-25	4:40 - 5:20 PM	Active Transport and Assembly Using Motor Proteins B. C. BUNKER, G. D. Bachand, A. K. Boal, S. B. Rivera, R. P. Manginell, J. M. Bauer, A. M. Bouchard, G. C. Osbourn, and E. D. Spoecke

**Wednesday June 15, 2005**

Presiding: H. Cölfen

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| 15-26 | 10:00 – 10:40 AM | Biomaterials from Nanocolloids: Applications for Neurons<br>N.A. KOTOV   |
| 15-27 | 10:40 – 11:00 AM | Electronic Nanodevice Piggyback on Live Bacteria<br>R.F. SARAF, V. Berry   |
| 15-28 | 11:00 - 11:20 PM | Spontaneous Assembly of Macroporous Titania<br>A. Collins, D.C. Martin, S. DAVIS, S. Mann  |
| 15-29 | 11:20 - 11:40 PM | Biotechnology and Biomimetics Opens New Routes to the Fabrication of Silica and Metal Oxide Semiconductors<br>D.J. KISAILUS, M. Najarian, J.C. Weaver, Y. Amemiya, J.H. Choi, W. Yang, J.L. Sumerel, Y. Li, D.E. Morse |
| 15-30 | 11:40 - 12:00 PM | Surface Patterning of Silica Nanostructures Using Bio-Inspired Templates and Directed Synthesis<br>M. J. DOKTYCZ, E. A. Coffman, J. D. Fowlkes, A. V. Melechko, D. P. Allison, M. L. Simpson                           |
| 15-31 | 12:00 - 12:20 PM | Biomaterials with Hierarchially Defined Micro- and Nano-Scale Structure<br>J. TIAN, and W.M. Saltzman  |