

Program

Fibrous Protein Nanocomposites for Tailored Hybrid Biostructures and Devices

**October 8-12, 2012
Daios Cove Resort, Crete**

Conference Chairs:

**Prof. Anna Mitraki
University of Crete**

**Prof. Perena Gouma
SUNY at Stony Brook**



Engineering Conferences International

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Monday, October 8, 2012

16:00 – 18:00	Conference Check-in
18:00 – 19:00	Welcome Reception
19:00 – 21:00	Buffet Dinner

NOTES

- Audiotaping, videotaping and photography of presentations are strictly prohibited.
- Please do not smoke at any conference functions.
- Turn your cellular telephones to vibrate or off during technical sessions.
- All technical and poster sessions will be in Ballroom 1.
- Breakfasts and dinners (except for the Thursday dinner) will be in Pagea Restaurant. The Cretan dinner on Thursday will be in the Taverna Restaurant.
- Be sure to check your contact information on the Participant List in this program and make any corrections to your name/contact information online. A corrected copy will be sent to all participants after the conference.
- Speakers – Please leave at least 5 minutes for questions and discussion. Be available for discussion during meals and social periods

Tuesday, October 9, 2012

- 07:00 – 08:30 Breakfast
- 08:30 – 08:35 Opening/Welcome – TBA
- 08:35 – 09:20 Plenary Talk: Molecular self-assembly of short proteins and peptides: From biology and biochemistry to nanotechnology and materials science
Ehud Gazit, Tel Aviv University, Israel
- Session I: Amyloid Type Structures and Other Types of Natural Self-Assemblies**
- 09:20 – 09:50 Invited Talk: “Hacking” The code of a functional, protective amyloid
Stavros Hamodrakas, University of Athens
- 09:50 – 10:20 Templating functional nanocomposites by engineered amyloid fibrils
Raffaele Mezzenga, ETH Zurich, Switzerland
- 10:20 – 10:50 Coffee break
- 10:50 – 11:20 Fabrication of oriented multilayers of photosynthetic reaction centers
Chanoch Carmeli, Tel-Aviv University, Israel
- 11:20 – 11:50 Invited Talk: Proteins for nanoplasmonic systems: design of the next generation
Erik Dujardin, CNRS, Toulouse, France
- 11:50 – 12:20 Invited Talk: Screw tube assembly from bacteriophage T4 and its material and biological applications
Takafumi Ueno, Tokyo Institute of Technology, Japan
- 12:20 – 14:00 Lunch
- 14:00 – 16:00 *ad hoc* sessions/free time
- 16:00 – 16:30 Afternoon coffee
- Session II: Protein Self-Assembly-Principles and Computations**
- 16:30 – 17:00 Invited Talk: Assembly mechanism of spider silk proteins and applications of spider silk materials
Thomas Scheibel, University of Bayreuth, Germany
- 17:00 – 17:30 Invited Talk: Prediction of protein aggregation propensity
Salvador Ventura, Universidad Autonoma de Barcelona, Spain
- 17:30 – 18:00 Invited Talk: Computational and experimental studies of peptide self-assembly
T. Tuttle, University of Strathclyde, UK
- 18:00 – 18:30 Invited Talk: Self-assembling peptides as tags for production of active protein aggregates and peptides
Zhanglin Lin, Dept. of Chemical Engineering, Tsinghua University, China
- 18:30 – 20:00 Dinner
- 20:00 – 21:30 Poster Session and Social Hour

Wednesday, October 10, 2012

07:00 – 08:30 Breakfast

Session III: Protein Self-Assembly-Properties and Applications

08:30 – 09:00 Invited Talk: The interaction of liquids with virus tubes and with protein fibres
Alexander Bittner, CIC Nanogune, Spain

09:00 – 09:30 Invited Talk: Self-assembled peptide nanostructures for template directed synthesis of one-dimensional inorganic systems
Mustafa O. Guler, Bilkent University, Turkey

09:30 – 10:00 Invited Talk: Electric conduction of self-assembled peptide fibrils: Mechanisms and structure-function relations
Nurit Ashkenasy, Ben-Gurion University, Israel

10:00 – 10:30 Coffee break

10:30 – 11:00 Sustained release of doxorubicin from peptide hydrogels
Shlomo Zarzhitsky, Ben-Gurion University, Israel

11:00 – 11:30 Invited Talk: Engineered protein nanopores for single-molecule protein detection
Liviú Movileanu, Syracuse University, USA

11:30 Lunch your own/*ad hoc* sessions

13:00 – 17:00 Optional excursion to Spinalonga Island
(bus will depart at 1 pm sharp)

19:00 – 21:00 Dinner

Thursday, October 11, 2012

07:00 – 08:30 Breakfast

Session IV: Nanomedicine-Tissue Engineering

08:30 – 09:00 Invited Talk: Cellulose acetate-hydroxyapatite fibrous scaffolds for growing of bone cells
Csaba Balázsi, Hungarian Academy of Sciences, Hungary

09:00 – 09:30 Invited Talk: Probing cell interactions with designed and naturally occurring functional amyloid fibrils
Sally Gras, University of Melbourne, Australia

09:30 – 10:00 Invited Talk: Peptide nanotubes formed by lanreotide, an analogue of the natural peptide hormone somatostatine-14: From structure to size control
Maite Paternostre, CEA Saclay, France

10:00 – 10:30 Tissue Engineering Nanobiosensors for a Biologically Inspired Sensing Substrate
Georgina Kaklamani, Birmingham University, UK

10:30 – 11:00 Coffee break

11:00 – 11:30 Invited talk: Direct laser writing: Materials and applications in photonics and biomedicine
Maria Farsari, IESL/ FORTH, Heraklion, Crete

11:30 – 12:00 Polypeptide self-assembly enhances its expression, processing, and function in a bionanotechnology application
Tanja Gruber, DuPont, DuPont Experimental Station, USA

12:00 – 12:30 Invited Talk: Nanostructured bacterial amyloids as versatile drug delivery systems
Antonio Villaverde, Universidad Autonoma de Barcelona, Spain

12:30 – 17.00 lunch on your own/ad hoc sessions/free time

17:00 – 18:00 Tutorial: Electrospinning of fibrous nanomaterials for biomedical applications
Perena Gouma, SUNY, USA

18:00 – 19:00 Special Lecture: Lasers in art and archaeology. How far can we get?
Demetrios Anglos, IESL/FORTH, Greece

19:30 Cretan Folklore Dinner

Friday, October 12, 2012

07:00 – 08:30 Breakfast

Session V: Nanocomposites

08:30 – 09:00 Invited Talk: Genetically engineered proteins for nanocellulose-graphene composites
Markus Linder, Aalto University / VTT Technical Research Centre of Finland

09:00 – 09:30 Invited Talk: From fibres to networks using self-assembling peptides
Alberto Saiani, University of Manchester, UK

09:30 – 10:00 Dynamic self-assembling proteins on surfaces: Scaffolds for nanostructuring
Marisela Vélez, Campus de Cantoblanco, Madrid, Spain

10:00 – 10:30 Coffee break

10:30 – 11:00 Closing comments

Lunch on your own and departures

POSTER PRESENTATIONS

1. Hydrogels of an asymmetric collagen-inspired triblock with disulphide bonds
Thao T.H. Pham, Wageningen University, The Netherlands
2. The tailspike protein of bacteriophage P22: A tool for fiber-based bacteria sensing?
Kerstin Tang, University of Potsdam, Germany
3. Neutron and x-ray studies of amyloid forming peptide sequences from the adenovirus shaft
Estelle Mossou, Grenoble, France and EPSAM, Keele University, UK
4. Fabrication of 3D conducting nanostructures by non-linear lithography and their functionalization with amyloid peptides and cells
K. Terzaki, University of Crete and IESL/ FORTH, Greece
5. Inclusion Body (IB)- based topographies as platform to direct osteogenesis in mesenchymal stem cells
Joaquin Seras-Franzoso, Universitat Autònoma de Barcelona, Barcelona, Spain
6. Study of biogenic hydroxyapatite covered biocompatible TiC thin films
Csaba Balazsi, Hungarian Academy of Sciences, Hungary
7. Expression and structural characterization of proteins from the adenovirus fiber shaft towards the design of new nanobiomaterials
Ariadne Prigipaki, University of Crete, Greece
8. Sustained release of doxorubicin from peptide hydrogels
Shlomo Zarzhitsky, Ben-Gurion University, Israel
9. One-step coating of titanium oxide by functional peptide
Anna Gitelman, Ben-Gurion University, Israel
10. AMYLPRED2: a consensus method for amyloid propensity prediction - examples of its use
Antonios Tsolis, University of Athens, Greece
11. Self-assembly of short peptide sequences from a natural fibrous protein, The adenovirus fiber shaft
Phanourios Tamamis, University of Cyprus, Cyprus
12. PEO/PLLA single and coaxial electrospun nanofibers with tunable release properties for sustained tyrosine kinase inhibitors delivery in solid tumors in situ
Maria Kokonou, EPOS-lasis, R&D, Cyprus
13. A reversible self-assembling light-harvesting system based on a diphenylalanine – porphyrin motif
Kostas Karikis, University of Crete, Greece

14. Molecular modelling of the mechanical behavior of the collagen embedded with graphene and graphene oxide
Mariana Ionita, University POLITEHNICA of Bucharest, Romania
15. Electrospun fibrous nanomaterials for nanomedicine applications
Perena Gouma, SUNY Stony Brook, U. S.A.
16. Nanocharacterization of UV-Irradiated Collagen Thin Films by Atomic Force Microscopy Imaging and Nanoindentation
Andreas Stylianou, National University of Athens, Greece