

May 2012						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Events

Principles and Development of Bio-Inspired Materials

Location	Vienna, Austria
Date	13 - 15 April 2010
Calendar file	.vcs .ics

Bio-inspired materials are becoming of increasing interest in many fields of practical applications. In contrast to man-made materials natural materials such as wood, bone and shells are composed of only limited number of basic components. They gain their diversity in mechanical properties by hierarchical structuring which allows them to fulfil a variety of functions e.g. self-healing, mechanical stability, high toughness.



Due to the quickly advancing physical characterisation techniques our knowledge of the hierarchical structures has increased significantly in recent years and the secrets of form-function relationships are slowly unveiled. But combining the knowledge of natural

materials with modern techniques of simulation and fabrication is still the exception due to the lack of communication between bio- and material scientists.

This Strategic Workshop funded by the COST Office aims to be the direct interface between the biological and the processing side to unfold the full potential of bio-inspired materials.

The workshop will provide a forum to stimulate interactions between relevant disciplines including biology, materials science, biomimetics, engineering and physics. It will be organised along three main themes:

- Material Design Strategies of Nature
- Implementation of Biological Concepts (Abstraction and Translation)
- Applications.

Workshop sessions start each day at 9:00.

Workshop sessions end on 13 and 14 April at 18:00 and on 15 April at 17:00.

Confirmed Speakers

- Eduard ARZT (DE) and M. Kamperman (DE): Bio-inspired adhesive surfaces
- Friedrich BARTH (AT): The biological application of physics in sensory organs
- Ming DAO (US): Cell mechanics and human diseases
- Yuri ESTRIN (AU): Topological interlocking as a materials design concept
- Patrick FLAMMANG (BE): COST ACTION TD0908 Marine adhesives: From biology to biomimetics
- Catherine FOLEY (AU): TBC
- Peter FRATZL (DE): Hierarchical nanocomposites and mechanical function – learning from nature's materials
- Lorna GIBSON (US): Mechanically efficient cellular microstructures in plants
- Anja HAENZL, Peter Uggowitzer (CH): Magnesium-alloys for bio-resorbable implants
- Helmut KIRCHNER (DE): Are natural materials better than man-made ones?
- Takuya KITAOKA (JP): Synthesis and bio-applications of carbohydrate-gold nanoparticle conjugates
- Cecilia LASCHI (IT): Bio-inspiration in robotics: towards a new generation of soft-bodied robots
- Kathryn McGRATH (NZ): Learning from Biomineralisation
- Loredana MOIMAS (FI): Development of three-dimensional porous bioactive glass scaffolds, from bench testing to clinical investigation

Registration

Ended

Chaired by

Stefanie Tschegg
BOKU - University of Natural Resources and Applied Life Sciences, Vienna, AT

Robin Seidel
University of Freiburg, DE

Downloads

- ▶ Final Bioinspired Programme (PDF, 147 kB)
- ▶ Conference Flyer (PDF, 2 MB)

Authorised Presentations

- ▶ Ming Dao (PDF, 1 MB)
- ▶ Yuri Estrin (PDF, 2 MB)
- ▶ Patrick Flammang (PDF, 4 MB)
- ▶ Cathy Foley (PDF, 6 MB)
- ▶ Lorna Gibson (PDF, 4 MB)
- ▶ Helmut Kirchner (PDF, 2 MB)
- ▶ Jose Perez-Rigueiro (PDF, 3 MB)
- ▶ Francois Prinsloo (PDF, 53 kB)
- ▶ David Taylor (PDF, 179 kB)
- ▶ Stefanie Tschegg, Thomas Rosenau, Falk Liebner (PDF, 689 kB)
- ▶ Sybrand van der Zwaag (PDF, 305 kB)
- ▶ Victor Wessels (PDF, 1 MB)
- ▶ Caroline Whelan (PDF, 1 MB)
- ▶ Ernst Wolner (PDF, 2 MB)
- ▶ Mao See Wu (PDF, 831 kB)

Contact Information

Ms Antje Teegler
Conference Officer
COST Office
Avenue Louise 149
B-1050 Brussels
Belgium
Tel. +32 2 533 38 57
Fax +32 2 533 38 90
▶ biomat@cost.esf.org

Venue

Hotel Modul
Peter Jordan Str. 78
A-1190 Vienna
Austria
Tel. +43 1 47660 0
▶ [Website of venue](#)

- José PEREZ-RIGUEIRO, M. Elices, G.V. Guinea, and G.R. Plaza. (ES): Bio-inspiration from spider's silks
- Francois PRINSLOO (ZA): European/South African Cooperation in Scientific and Technical Research
- Dierk RAABE (DE): Structure, properties, and modeling of the arthropod cuticle: example of lobster *Homarus Americanus*
- Robert RITCHIE (US): Development of bio-inspired ceramic composites
- David TAYLOR (IR): Things that we can't learn from nature
- Stefanie TSCHEGG, Thomas Rosenau, Falk Liebner (AT): Wood as a bio-inspiration material
- Yasumitsu URAKI (JP): Fabrication of honeycomb-patterned cellulose material mimicking woody cell wall formation
- Sybrand VAN DER ZWAAG (NL): Self healing man-made engineering materials: bioinspired but respecting their intrinsic character
- Alfred VENDL (AT): Nature Tech: How engineers are inspired by nature's top designs
- Viola VOGEL (CH): Mechanisms how mechanical forces can be exploited to switch function
- Ernst WOLNER (AT): Bioartificial surfaces
- Mao See WU (SG): Challenges and strategies for the mechanical modeling of bio-inspired materials



COST is supported by the EU RTD Framework Programme



ESF provides the COST Office through a European Commission contract



The Council of the European Union provides the COST Secretariat

- ▶ [Legal Notice](#)
- ▶ [Accessibility](#)
- ▶ [Sitemap](#)