

Strategic Workshop

# Principles and Development of Bio-Inspired Materials

13-15 April 2010, Vienna, Austria



## Workshop Aims

Bio-inspired materials are becoming increasingly relevant to many fields of applications. They achieve their performance and diversity in properties by hierarchical structuring rather than by proliferation of basic substances. This is what allows them to fulfil a variety of functions e.g. adaptive design, self-assembly, self-healing, mechanical stability, toughness, etc.

The aim of the COST Strategic Workshop is to provide a forum to stimulate interactions between relevant disciplines including biology, materials science, biomimetics, engineering and physics.

The Workshop will be organised along three main themes:

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

## More Information

[www.cost.esf.org/events/biomat](http://www.cost.esf.org/events/biomat)

[www.map.boku.ac.at/workshopBIOMAT.html](http://www.map.boku.ac.at/workshopBIOMAT.html)



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### Chair

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**Caroline Whelan**  
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COST is supported by the EU RTD Framework Programme



ESF provides the COST Office through a European Commission contract

## Strategic Workshop

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### Invited Plenary and Keynote Talks

- Eduard ARZT (DE) and M. KAMPERMAN (DE): *Bio-inspired adhesive surfaces*
- Friedrich BARTH (AT): *The biological application of physics in sensory organs*
- Yuri ESTRIN (AU): *Topological interlocking as a materials design concept*
- Peter FRATZL (DE): *Hierarchical nanocomposites and mechanical function – learning from nature’s materials*
- Lorna GIBSON (US): *Mechanically efficient cellular microstructures in plants*
- 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*
- Dierk RAABE (DE): *Structure, properties, and modeling of the anthropod cuticle: example of lobster Homarus Americanus*
- Robert RITCHIE (US): *Development of bio-inspired ceramic composites*
- Subra SURESH (US): *Cell mechanics and human diseases*
- Sybrand VAN DER ZWAAG (NL): *Self healing man-made engineering materials: bioinspired but respecting their intrinsic character*
- 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*
- Manuel ELICES, G.V. Guinea, J Perez-Rigueiro and G.R. Plaza. (ES): *Bio-inspiration from spider’s silks*
- Helmut KIRCHNER (FR): *Are natural materials better than man-made ones?*
- Loredana MOIMAS (SE): *Development of three-dimensional porous bioactive glass scaffolds, from bench testing to clinical investigation*
- Franz RIEMELMOSER (AT): *Magnesium alloys for bio-resorbable implants*
- 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*

### Movie

- Alfred VENDL (AT): *Genius of Nature* (tbc)

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### Mark Your Calendar

#### Call for Posters

Opening date: 1 July 2009  
Closing date: 14 October 2009  
Notification of acceptance: 15 November 2009

#### Final programme

Publication: 15.02.2009

#### Registration for Paying Participants

Opening date: 1 September 2009  
Closing date: 1 February 2010

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### Venue

#### University of Natural Resources and Applied Life Sciences Vienna, BOKU

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1190 Vienna, Austria  
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### Contact Information

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## Strategic Workshop

### Call for Posters

If you wish to present a poster, you must submit the application form available at [www.map.boku.ac.at/workshopBIOMAT.html](http://www.map.boku.ac.at/workshopBIOMAT.html) no later than **14 October 2009**. Poster contributions will be selected by the Steering Committee.

You must provide your contact details and an abstract, before the application deadline. If you wish to apply for a grant, you must indicate this on the form.

Once your application form has been reviewed and you have been accepted as a participant to the workshop, you will receive a confirmation and will be asked to confirm your participation and pay the conference fee (if applicable) by completing an online registration form.

**Three prizes for the best posters** will be awarded by the Steering Committee to Early Stage Researchers\* who present at the workshop. The following criteria are used to evaluate the posters and choose the winners: structure, coherence of the message, theoretical framework, use of relevant resources and strength of the relationship to the workshop theme.

### Financial Support

**30 grants** are available for Early Stage Researchers\* to cover the conference fee and possibly part of the travel costs. Grant requests should be indicated in the "Grant application" section of the application form.

### Conference Fees

The following fees apply:

Full 3-Day-Conference Fee (1 Sep-31 Jan)	<b>350.00 EUR</b>
Full 3-Day-Conference Fee (after 31 Jan)	<b>400.00 EUR</b>
Early Stage Researcher* 3-Day Conference Fee (1 Sep-31 Jan)	<b>250.00 EUR</b>
Early Stage Researcher* 3-Day Conference Fee (after 31 J)	<b>300.00 EUR</b>

The conference fee covers basic expenses including:

- Registration and meeting costs
- Conference proceedings
- Lunches and coffee breaks from 13 to 15 April 2009
- Reception at City Hall Vienna
- Conference Dinner (*not included in Early Stage Researcher Fee*)

The conference fee does not cover travel or accommodation expenses.

\**Early Stage Researcher = any researcher within the first 10 years work experience since their last qualification (BSc, MSc, PhD) not including career absence.*

### Fees for Accompanying Partners

The following fees apply:

Participation in City Hall Reception and Conference Dinner	<b>100.00 EUR</b>
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Accompanying guests are not entitled to take part in any of the actual conference activities (attend talks in the conference room, coffee breaks, etc.). Conference facilities, such as access to the internet, are destined for the sole use of conferees.



### About COST

COST is an intergovernmental framework for European Cooperation in Science and Technology, allowing the coordination of nationally-funded research on a European level.

It is one of the longest-running European instruments supporting cooperation among scientists and researchers across Europe.



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