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Area F

Symposium F4

Title: „Bioinspired materials“		
Organizer	Institution	Contact email
Helga Lichtenegger	BOKU Wien	helga.lichtenegger@boku.ac.at
Thomas Speck	University of Freiburg	thomas.speck@biologie.uni-freiburg.de
Abstract		
<p>Nature's materials still fascinate researchers of all disciplines due to their unique properties that have evolved during billions of years, some of them still being unmatched by technology, despite tremendous progress in materials science. Recent developments allow to fabricate more and more complex hierarchically structured materials and materials systems, bringing us at least closer to the biological role model by exploiting novel routes in self-assembly, microfabrication, smart materials development, etc. Bio-inspired approaches have also been tested in engineering for example to achieve mechanical optimization, adaptive structures, self-reinforcing and self-healing materials, etc. All these approaches are driven by the hope to draw on Nature's ingenuity to obtain new high-performance materials based on resource efficient technologies or find sustainable solutions for existing technical problems. A lot of challenges, however, remain, such as the bridging of many length scales to make small structures into large, load-bearing parts or the other way round, and to implement responsiveness to stimuli, achieve multifunctional, adapting or self-repairing materials etc.</p> <p>This symposium shall bring together scientists across multiple disciplines and at different career stages to share their fascination about bio-inspired materials and exchange ideas. We welcome contributions concerned with fundamental research as well as applied research and engineering.</p> <p>Targeted topics include, but are not limited to:</p> <ul style="list-style-type: none">• Bio-inspired surfaces• Bio-inspired materials with advanced properties (optical, mechanical, etc.)• Hierarchically structured materials following biological principles• Bio-inspired materials for tissue engineering and medical applications• Bio-inspired materials exhibiting smart functionalities such as self-repair, self-healing, responsiveness, etc.• Bio-inspired materials fabrication• Characterization and modelling of bio-inspired materials		