

EUROMAT 2019 / Bio-based Materials

SYMPOSIUM: I3

Title: Bio-Inspired Materials		
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Abstract		
<p>Whilst humans have been using materials for thousands of years, Nature has had a significant head start, with over a billion years of successful research and development (i.e. evolution through natural selection). During this time Nature has created materials with a huge spectrum of properties which often outperform their industrial counterparts, from various types of self-repair in plant and animals to the incredibly tough silk of an orb weaving spider. Making them more industrially appealing, all natural materials are built hierarchically from the nanoscale-up and show a high potential for the development sustainable bio-inspired materials systems, being aqueously and efficiently processed and within a narrow range of temperatures and pressures.</p> <p>This symposium will focus on what can be learnt from natural materials and how they can be used to help solve challenges in the 21st Century. Covering the most exciting and recent developments from across the fields of bio-inspiration and biomimetics, the scope of this symposium will be as broad as Nature itself.</p> <p>We aim to engage and include researchers from across the scientific and engineering disciplines at all stages of career development, bringing together perspectives and insight that we believe will be greater than the sum of their individual parts.</p> <p>We would like to invite contributions from people working on natural and bio-inspired materials from fundamentals through to application, i.e. evolution to engineering. Specific topics may include, but are certainly not limited to: Plant-based materials and structures (cellulose, photosynthesis) Animal-based materials and structures (collagen, resilin, nacre), bioinspired fabrication of materials (self-assembly, growth and spinning), biomimetic</p>		

surfaces and their application (i.e. Lotus effect, photonic surfaces), and bio-inspired application of materials (i.e. smart responsive materials, materials for soft robotics, biomimetic engineering).