EUROMAT 2019 / Bio-based Materials

SYMPOSIUM: I1

Title: Bio-templated Materials

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Abstract

Bio-templated Materials:

As the global demand for functional ceramic materials increases, we need smarter and more resource-efficient methods to produce them. In particular methods which can control structure (and therefore properties) are becoming increasingly attractive as a way to decrease our reliance on toxic or scarce materials. Biotemplating (using natural materials to control structure and morphology during synthesis) is becoming an increasingly attractive method by which this can be achieved, and so there is now a drive to produce new and known materials using structures found in nature. This also requires understanding of the processes and mechanisms which drive crystallization from the earliest time during synthesis.

This symposium will focus on the synthesis and control of functional ceramic materials (for example oxides, carbides, nitrides) using biotemplated techniques, with an emphasis on novel morphologies, polymorphs, and structures, and emergent morphology-function relationships. There will also be scope to examine mechanistic and technical aspects of the biotemplating process (particularly in new types of template), and scale-up.

We would like to engage with both scientists and engineers across a range of career stages, bringing these techniques to a broad audience to help generate ideas and create new collaborations. We would therefore welcome submissions from a wide range of topics within the field of biotemplating, including (but not limited to) hard templating using natural materials, soft templating, control of crystallization, sustainability of biotemplating, and mechanistic understanding of systems.