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3D PRINTING OF BIOINSPIRED MATERIALS

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Host: Prof. Dr. Aránzazu del Campo

Biological materials exhibit heterogeneous architectures that are tuned to fulfill the functional demands and mechanical loading conditions of their specific environment. Examples range from the cellulose-based organic structure of plants to collagen-based skeletal parts like bone, teeth and cartilage. Because they are often utilized to combine opposing properties such as strength and low-density or stiffness and wear resistance, the heterogeneous architecture of natural materials can potentially address several of the technical limitations of artificial implants or composites in general. However, current man-made manufacturing technologies do not allow for the level of composition and fiber orientation control found in natural heterogeneous systems. In this talk, I will show that 3D printing routes using self-assembly inks offer an exciting pathway for the fabrication of biologically-inspired materials with unprecedented heterogeneous architectures and functional properties.

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