

Abstract Submitted  
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**Nacre-Mimetic Composites via Single-Step Self-Assemblies of Polymer-Coated Colloids** OLLI IKKALA, Helsinki University of Technology/Aalto University School of Science and Technology, MOLECULAR MATERIALS TEAM — We demonstrate a scalable single-step self-assembly of polymer-modified plate-like colloidal platelets for nacre-mimetic materials, which overcomes the problem of sequential deposition to prepare hard and soft nacre-mimetic assemblies, which is inherently slow and not scalable. The materials have low density and show good mechanical properties, i.e., modulus of 45 GPa and strength 250 MPa, i.e. partly surpassing those of nacre (Walther et al, Nano Letters 2010, Angew Chem 2010). We expect that the concepts open a route for biomimetic materials from the lab to technology.

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