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Another type of soft matter: the non-trivial properties of composite silk meta-structures

Spider silk metastructures are composite heterogeneous structures based on the interaction between soft matter, e.g. polymers and glues, and crystal sheets. These structures are too big to be analysed using molecular and atomistic dynamics, but too non-linear and soft to be solved using common engineering approaches used in structural mechanics. New models are needed, models which require a strict collaboration between biologists, physicists and engineers, enabling the understanding of previously unknown strategies to achieve extreme mechanical properties. In this talk some examples of these strategies will be presented, remarking how messy and fantastic nature can be, and what we can learn from it to develop new materials and new devices.

**Aktuelle Probleme der Theorie Weicher Materie,
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1 mm

