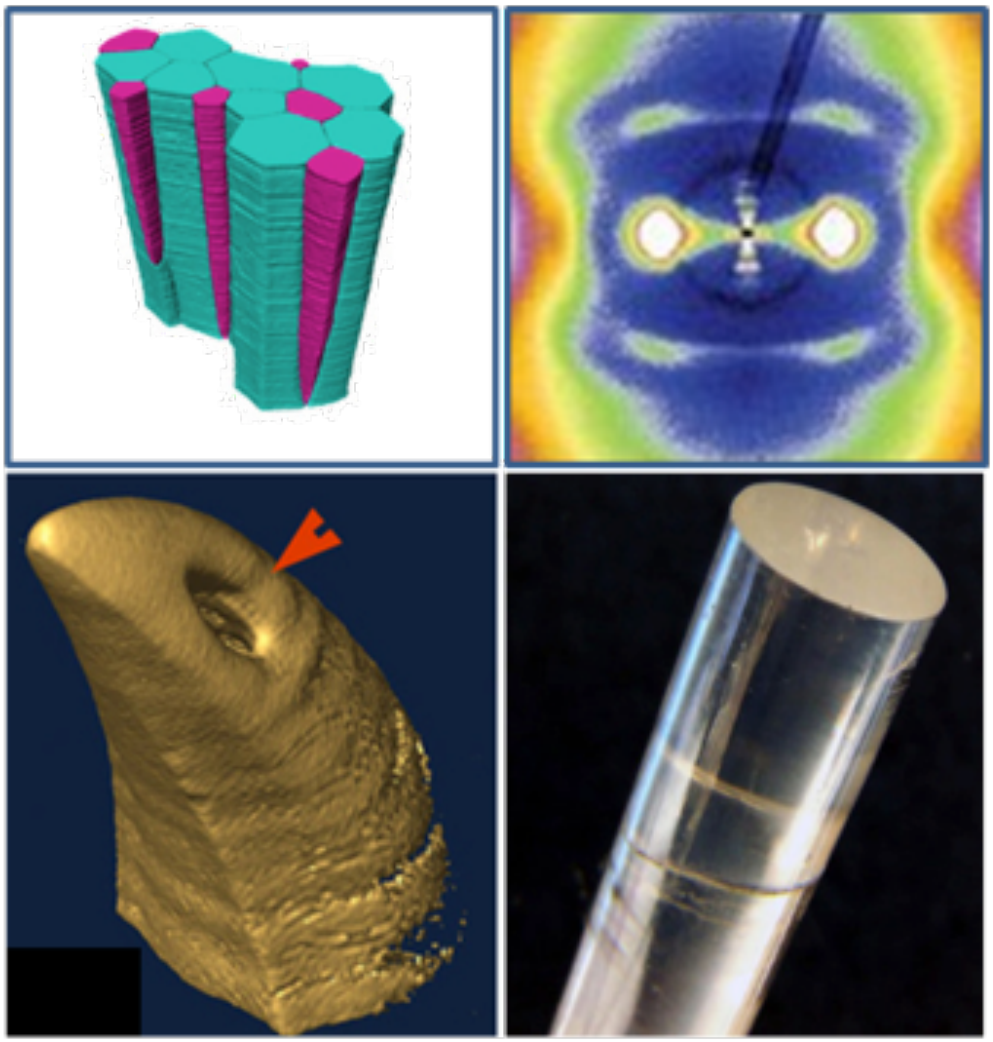
CBI ERLANGEN

Donnerstag 2. Juli 2015
16:15 Uhr, Hörsaal H3

Advanced materials from Nature's toolbox

Prof. Dr. Peter Fratzl
Max Planck Institute of Colloids and Interfaces, Potsdam



Materials with outstanding mechanical properties have appeared in the course of evolution. They are found for example in skeletons, plant stems, protective shells and active skins. Many of these materials are designed to sustain continuous or occasional forces. They are generally hybrid materials comprising proteins or polysaccharides and – sometimes – mineral. They are built in a hierarchical fashion, which allows them to be optimized for their function at many different structural levels and acquire adaptive or self-healing properties. In some cases, these materials are not only passively carrying forces but are even able to generate movement without an intrinsic chemical energy source. Indeed, many plants harvest energy from naturally occurring changes or gradients in humidity to actuate their organs, e.g., for seed dispersal or to modulate growth. Some of the structural principles observed in biological load-carrying and actuating hybrid materials will be reported and discussed in the lecture.

Kontakt: Prof. T. Pöschel, thorsten.poeschel@fau.de