Understanding the Microarchitecture of Mother-of-Pearl

Biominerals have attracted the attention of materials scientists, biologists, and mineralogists as well as physicists because of their remarkable mechanical properties and incompletely elucidated formation mechanisms. Nacre, or mother-of-pearl, is a layered biomineral composite that is widely studied because of its self-assembled, efficient and accurately ordered architecture results in remarkable resistance to fracture.

New experimental tools enable us to obtain new information about how the mineral tablets in nacre organize. Our experimental and theoretical investigations yield strong evidence that orientational ordering of these tablets is the result of dynamical self-organization.