

**Prof. Rob Phillips** (Professor of Biophysics and Biology, California Institute of Technology, USA) will be talking about "Bacteria are stressed out too: The Physics of Mechanosensation". Here is an abstract of his talk:

The control of water flow in living organisms is central to their survival. Amphibians die in long time exposure to salt water raising many biogeographical questions about how oceanic islands like those in the Gulf of Guinea are home to so many species of amphibian. Cholera, such as the outbreak that decimated Haiti after the earthquake some years ago, similarly is a malady that arises from uncontrolled water flow induced in the cells of the small intestine by bacterial toxins. Even these humble bacteria can themselves die if quickly placed in a solution with widely different osmotic conditions. In this talk I will examine all three of these case studies from a mechanical point of view, with special emphasis on the mechanosensitive channels in bacterial membranes that are thought to protect them from osmotic stresses. The talk will combine insights from continuum theories of elastic deformations of cell membranes to single-cell experiments designed to test those theories.