KÖLNER Theoretisch-Physikalisches KOLLOQUIUM

Universität zu Köln

Time: Friday, May 3, 2013, 16.30 h
Speaker: B. Waclaw (Edinburgh)

Physics in the evolution of microbes

Biological evolution is a fascinating subject which can be fully understood only if it is approached from many different angles. In this talk I will present my personal point of view on how physics can advance our understanding of biological evolution. I will focus on three problems in the evolution of bacteria I have been working on recently. I will begin with a simple, statistical-physics model of the evolution of antibiotic resistance. This is a timely and important problem because drug-resistant, pathogenic bacteria are becoming a major health hazard. I will show that resistant bacteria can rapidly emerge in environments with spatially non-uniform drug concentration such as our bodies during antibiotic treatment. Towards the end of my talk, I will briefly discuss the evolution of metabolic networks in bacteria and biological evolution in bacterial colonies growing on solid substrates.

The talk will take place in the Theoretical Physics Seminar Room, Zülpicher Strasse 77.
Coffee is served at 16.10 h in the library.

R. Bulla, J. Krug