SFB 680

MOLECULAR BASIS OF
EVOLUTIONARY INNOVATIONS


# Rahul Marate

MPI-KG Golm


## Twitching Motility of Bacteria


Bacteria perform various kinds of motion based on a variety of molecular mechanisms. We are studying the Twitching motility of bacteria such as Neisseria gonorrhoeae, which use so called type IV pili to propel themselves over surfaces. Pili are long polymeric structures given out of the bacterial body which adhere to the surface and then retract, thus pulling the cell body. Recent experiments performed on these bacteria suggest that several pili co-operate in bacterial motion and that their co-ordination may be based on a tug-of-war between pili pulling in different directions. We are studying the Twitching Motility of bacteria, by a stochastic tug-of-war model, with a strong connection to experiments. The system is modeled by taking into consideration the stochastic nature of different processes. We describe the system as a tug-of-war between the pili, pulling a bacterium in different direction, to test whether this idea, together with known properties of individual pili can explain the observed patterns of bacterial motion.


**January 18, 2012 10:00am**

**Institute for Theoretical Physics, Conference Room**

Host: Joachim Krug

www.sfb680.uni-koeln.de