

Abstract for Kurt Ehlers:

Bacterial motion: basic physics + geometry + biology

The basic laws of physics apply to biological processes. Traditionally, only in rare cases have biologists approached their subject from the point of view of fundamental physics. One area where mathematicians, biologists, and physicists have collaborated is in the discovery and description of how bacteria move in fluids and along surfaces. I will describe some recent discoveries, models, and conjectures on the mechanisms behind the self-propulsion of Myxobacteria and Synechococcus – these are long-standing puzzles in microbiology that Jair Koiller and I have been studying for more than 20 years.