

The Department of Cell Biology and Neuroscience presents:

Departmental Seminar

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Department of Mathematical Sciences &
The Center for Computational Biology

“Filiform Hair Arrangement on the Cricket Cercus”



Friday, Feb. 29, 2008
3:10pm
Center for
Computational
Biology
1 Lewis Hall

Many arthropods use filiform hairs as mechanoreceptors to detect air motion. In common house crickets (*Acheta domestica*) the hairs cover two antenna-like appendages called cerci at the rear of the abdomen. The biomechanical stimulus-response properties of individual filiform hairs have been investigated and modeled extensively in several earlier studies, but representations of multiple hairs have been more problematic, since the densely packed hairs are coupled across small distances through the intervening air. We have developed a model capable of simulating this coupling and the resultant motion of multiple filiform hairs in an oscillating air flow. This model will allow us to address questions of functional optimality in the cricket cercal system related to the physical transduction of air motion to action potentials.