# Biological and artificial swarms

## Friday October 3, 2003

8:30–9:15 *Continental Breakfast*

9:15–9:45 *Welcome and Opening Remarks*

9:45–10:30 **Milind Tambe** (University of Southern California)
*Teamwork using distributed POMDPs*

10:30–10:45 *Break*

10:45–11:30 **Stephen Simpson** (Oxford University)
*Biblical Swarms: A Behavioural Analysis of Phase Change in the Desert Locust*

11:30–12:15 **Maja J. Mataric** (University of Southern California)
*Formalizing Intentional and Emergent Group Behaviour in Robots*

12:15–1:45 *Lunch (Hosted by IPAM)*

1:45–2:30 **Steven Viscido** (University of Washington)
*Individual Behavior and Emergent Properties of Fish Schools: A Comparison of Observation and Theory*

2:30–3:15 **P. S. Krishnaprasad** (University of Maryland)
*Geometry of Steering Laws for Swarming*

3:15–3:45 *Break*

3:45–4:30 **Iain Couzin** (Princeton University)
*Self-Organization and Collective Behavior in Animal Groups*

4:30–5:00 **Daniel Marthaler** (Duke University)
*PDE-Based Path Planning Methods for Unmanned Underwater Vehicles*

## Saturday October 4, 2003

10:00–10:30 **Gary Hewer** (Naval Air Warfare Center)
*Auction Algorithms for Multiassignment Swarming*

10:30–11:15 **Anke Ordemann** (University of Marburg)
*Swarming of the Zooplankton Daphnia: Experiment and Theory*

11:15–11:30 *Break*

*(Saturday schedule continued on next page)*

*(Saturday schedule continued from previous page)*

| | |
|---|---|
| 11:30–12:00 | **Kristina Lerman** (USC Information Sciences Institute)<br>*Modeling Adaptive Robot Swarms* |
| 12:00–1:15 | *Lunch (on your own)* |
| 1:15–1:45 | **Chad Higdon-Topaz** (UCLA)<br>*Swarming Dynamics of a Model for Biological Groups in Two Dimensions* |
| 1:45–2:15 | **Cristian Huepe** (Northwestern University)<br>*Intermittency and clustering in a system of self-driven particles* |
| 2:15–2:30 | *Break* |
| 2:30–4:30 | *Panel Discussion* |
| 4:30–12:00 | *Conclusion* |