

Schedule for the NAS – IUSSI meeting (Friday – Monday, 24-27 October, 2008)

Friday – travel day; check in at Camp Guajataka, dinner and refreshments

Saturday – talks during the day, followed by business meeting; evening poster session

Sunday – talks during the day; evening mixer

Monday – travel day; breakfast, followed by departure for the airport or field trip

Transportation from SJU Airport to Camp Guajataka, and return trip to the airport

Camp Guajataka is on the shore of Lake Guajataka, approximately 1.5 hour drive from the SJU airport. To help us plan transportation, it would be extremely helpful if you could arrive at SJU Airport by 6:00 P.M. on Friday 24 October. Following the meeting, we plan to have busses/vans leave for the airport immediately after breakfast on Monday 27 October; vans would arrive at the airport by about 11:30 A.M. -12:00 noon. Please keep these times in mind when booking your flight. We will be able to accommodate those that cannot travel within these time frames, but we would greatly appreciate your assistance in trying to stay within these time frames. Please email us at (prbreakout@gmail.com) your arrival and departure times at SJU Airport so that we can coordinate transportation.

FRIDAY EVENING, October 24

Transportation from SJU Airport; arrival & check-in at Camp Guajataka.

8:00-9:30 DINNER (in Dining Hall) followed by open time and mixer (late meals will be provided if needed) – after dinner mixer on the camp grounds.

SATURDAY, October 25

6:30-8:00 – BREAKFAST (Dining Hall)

NOTE THAT ALL TALKS AND POSTERS WILL BE AT THE MEETING HALL

INTRODUCTORY PROGRAM

SESSION 1. DIVISION OF LABOR

Morning moderator – Tugrul Giray

8:00 Introductory remarks

1. 8:10 Invited Talk: **Adam Smith**, Smithsonian Tropical Research Institute
2. 8:45 **Genetic links between ovary size and social behavior support the reproductive ground plan hypothesis in honey bees.** *Olav Rueppell*; University of North Carolina at Greensboro.

3. 9:00 **Methoprene influences wing beat frequency increase and troponin T expression of honey bees with accelerated development of foraging behavior.** *Daliris Ramirez Burgos¹, Devrim Oskay², Tugrul Giray¹*; (1) University of Puerto Rico, (2) Washington State University
4. 9:15 **The role of vitellogenin in the regulation of honey bee worker behavior.** *Kate Ihle¹, Robert E. Page Jr.¹, M. Kim Fondrk¹, Gro V. Amdam^{1,2}*; ¹Arizona State University, School of Life Sciences, Tempe AZ 85287, USA. ²University of Life Sciences, Department of Chemistry and Biotechnology, 1432 Aas, Norway
5. 9:30 **The relationship between spatial organization and division of labor in the bumble bee, *Bombus impatiens*.** Jennifer Jandt; University of Arizona
6. 9:45 **Ant colony spatial structure and its implications for ant-plant mutualisms** *Michele C. Lanan and Judith L. Bronstein*; University of Arizona, Interdisciplinary Program in Insect Science

10:00 BREAK

7. 10:15 **Redefining worker caste systems of Pheidole ants with polymorphic major workers.** *Ming Hua Huang*; University of Arizona
8. 10:30 **Endocrinological factors and division of labor in *Pogonomyrmex californicus* founding.** *Adam Dolezal*; Arizona State University
9. 10:45 **Regulatory effects of reproductive physiology on foraging bias through modulation of sucrose response in honey bees (*Apis mellifera*).** *Adam J. Siegel, Osman Kaftanoglu, M. Kim Fondrk, Robert E. Page, Jr.*; Arizona State University, School of Life Sciences
10. 11:00 **The genetic architecture of ovary size differences between Africanized and European honey bee workers.** *Allie Graham and Olav Rueppell*; University of North Carolina-Greensboro
11. 11:15 **Nest building in *Polybia occidentalis*; using a model to understand task coordination.** *Teresa I. León*; University of Wisconsin-Madison

11:30 -1:00 LUNCH (Dining Hall)

SESSION 2. EVOLUTION

Afternoon moderator – *Bert Rivera-Marchand*

Saturday, 1:00 pm to 3:00 pm

12. 1:00 Invited Talk: **Sociometry: a field still in search of data.**
Walter R. Tschinkel; Florida State University
13. 1:30 **Evolution of colony size in the seed-harvester ant genus *Pogonomyrmex* (Hymenoptera: Formicidae).** **Robert A. Johnson¹ and Ehab Abouheif²**; (1)School of Life Sciences, Arizona State University, Tempe, AZ; (2) Department of Biology, McGill University, Montreal, Quebec, Canada.
14. 1:45 **Sexual selection in social insects.** **Jennifer Kovacs and Michael A.D. Goodisman**; School of Biology, Georgia Institute of Technology.
15. 2:00 **Rare sexual reproduction by a facultative asexual facilitates invasion of novel habitats.** **Alexander S. Mikheyev and Stefan Bresson**;
16. 2:15 **Intra- and inter-specific variability of recombination rate in *Apis*.**
Emily Meznar and Olav Rueppell;
17. 2:30 **Phylogenetic analysis of Range expansion of the fire ant *Solenopsis geminata*.** **Heather Axen**; University of Vermont, Burlington, VT
18. 2:45 **Needle in the haystack – foundress number in *P. californicus* as model for group selection.** **Zachary Shaffer**; Arizona State University
19. 3:00 **Innate immunocompetence in *Polistes dominulus*: A critical test of the “haploid susceptibility hypothesis”.** **Noah Wilson-Rich, Faith Hester, Philip T. Starks**; Department of Biology, Dana Laboratories, Tuft University, Medford, MA.

3:15 BREAK

SESSION 3. MATING AND REPRODUCTION

Evening moderator – *Devrim Oskay*

Saturday, 3:30 pm to 5:30 pm

20. 3:30 **Choosing a new home: sensory coding of nest site value.** **P. Kirk Visscher, Thomas D. Seeley**; Department of Neurobiology and Behavior, Cornell University.
21. 3:45 **Social dominance enhances male mating opportunities in a paperwasp.**
Yamile Molina and Sean O'Donnell, University of Washington
22. 4:00 **Royal chemistry: Cuticular hydrocarbons and their possible role as a primer pheromone in a dampwood termite.** **Dorit Eliyahu**; Arizona State University
23. 4:15 **Are you my mother's? Learning and egg policing behavior in the ant *Camponotus floridanus*** **Dani Moore**; Arizona State University

24. 4:30 **Cuticular hydrocarbons correlate with fertility, not dominance in a paper wasp.** *Amanda Izzo*; University of Michigan, Ann Arbor
25. 4:45 **Effect of Honey Bee Queen Insemination Quantity on Supersedure Rates.** *Elina L. Niño**, *David Barnes†*, *Tom Dowda†*, *Joseph Flowers**, *Jerry Hayes†* and *Christina M. Grozinger** *Departments of Entomology and Genetics, W.M. Keck Center for Behavioral Biology, North Carolina State University, Raleigh, NC; †Bureau of Plant and Apiary Inspection, Apiary Inspection Section, Division of Plant Industry Florida Department of Agriculture and Consumer Services, Gainesville, FL
26. 5:00 **The mass departure of a honey bee (*Apis mellifera*) swarm from its parental nest: Triggering signals and signaler identity.** *Juliana Rangel-Posada*; Cornell University, Ithaca, NY.
27. 5:15 **Warranted aggression: the informational basis of policing in an ant society.** *Adrian A. Smith¹*, Bert Hölldobler, Jürgen Liebig; (1)Arizona State University

5:30 BUSINESS MEETING

6:30-7:30 DINNER (Dining Hall)

POSTER SESSION

Friday, 7:30 pm to 10:00 pm (Meeting Hall)

1. **The Birds and the Bees: Nest Site Competition between Honey Bees and Cavity-nesting Birds.** *Kyla Ercit* and Gard W. Otis
2. **Space invaders: nest-site competition between an introduced paper wasp, *Polistes dominulus*, and cavity-nesting Birds.** *Chris Earley* and Gard W. Otis
3. **Factors influencing mating behavior in *Lygus hesperus*.** *Colin Brent*, USDA-ARS
4. **Standard sampling plan for *Varroa destructor*.** Katie Lee, Marla Spivak, Eric Burkness, and Roger Moon. Dept. Entomology, University of Minnesota
5. **The biogeography of sex in the facultative thelytokous ant *Platythyrea punctata*.** Katrin Kellner, Jon N. Seal and Jürgen Heinze; *Biologie I, University of Regensburg, Universitätsstrasse 31, D-93053 Regensburg, Germany*; katrin.kellner@biologie.uni-regensburg.de
6. **The effect of juvenile hormone on temporal polyethism in the paper wasp *Polistes dominulus*.** *John R. Shorter*, Purdue University. * This project was conducted at The University of Michigan.
7. **Does *Varroa jacobsoni* reproduce on worker brood of *Apis cerana* in India?** *Jessica Burtness* (1), Raghavendra Gadagar (2), Marla Spivak (3). (1) Dept Ecology,

Evolution and Behavior, University of Minnesota, (2) Bangalore University, (3) Dept Entomology, University of Minnesota.

8. Element flow through colonies of the desert leafcutter ant *Acromyrmex versicolor*. *Rebecca Clark*, Kimberly Shaffer and Jennifer Fewell; Social Insect Research Group, Arizona State University

9. Gene expression and phenotype association in social wasps. Brendan G. Hunt, Soojin V. Yi, Michael A.D. Goodisman; Georgia Institute of Technology

10. Ant engineering: nest building challenges in variable granular media. *Laura Levy*, Michael Goodisman & Daniel Goldman; Georgia Institute of Technology, Schools of Biology and Physics

11. Social apoptosis in the super-organism? *Miranda Hayworth*, Nathan Ross, and Olav Rueppell; Departments of Biology and Mathematics, University of North Carolina at Greensboro.

12. Patterns of expression and abundance of Gp-9, a protein linked to social form in the fire ant, *Solenopsis invicta*. *Emily Matthews*, University of Georgia.

13. Africanized and European honey bee pollen foraging thresholds. *Dina Leslie Grayson* and Jennifer H. Fewell; School of Life Sciences, Arizona State University.

14. Putative native source of the invasive fire ant *Solenopsis invicta* in the USA. *David DeWayne Shoemaker*, USDA-ARS, Center for Medical, Agricultural and Veterinary Entomology, Gainesville, FL.

15. Spatial analysis of foraging activity of the polygynous red imported fire ant *Solenopsis invicta* (Hymenoptera: Formicidae). *Charito Orengo Rodríguez*, Department of Biology, University of Puerto Rico, San Juan, PR.

16. Lack of scent-marking of food sources in the swarm-founding wasp, *Polybia occidentalis*. *Benjamin J. Taylor*¹ and Robert L. Jeanne²; (1) Department of Zoology and (2) Department of Entomology, University of Wisconsin-Madison.

17. Genetic caste determination in harvester ants: If you are going to mate with many males, does it matter who they are? Brendon Mott; Arizona State University

18. Dominance hierarchy and nutrient acquisition in the slave-making ant *Protomognathus americanus*. *Jason Carbaugh*; Southeast Missouri State University

19. Sugar preferences of *Reticulitermes flavipes*. *Bruce A. Wallace* Southeast Missouri State University

20. Worker and weapon size and nest defense in *Solenopsis invicta*. *Kevin Haight*; Arizona State University.

21. **Honey bee DCAs (drone congregation areas) in Puerto Rico.** *Carlos M. Huerta Dones, Carlos J. Rivera Rivera, Laura Caicedo Quiroga, Alberto Galindo Cardona;* University of Puerto Rico, San Juan, PR

22. **Homing in male honey bees (drones): If I don't come back, don't wait for me.** *Rafine Moreno Jackson, Carlos M. Huerta Dones, Alberto Galindo Cardona;* University of Puerto Rico, San Juan, PR

23. **Aggressive behavior of fire ants (*Solenopsis invicta*) in Puerto Rico.** *Vilmarie Figueroa-Nieves and Bert Rivera-Marchand;* InterAmerican University, Bayamon, PR.

24. **Division of labor in the little fire ant (*Wasmannia auropunctata*).** *Rafael Fernández-Casas and Bert Rivera-Marchand;* InterAmerican University, Bayamon, PR.

25. **Behavioral plasticity of queens in the little fire ant (*Wasmannia auropunctata*).** *Yarira Ortiz-Alvarado and Bert Rivera-Marchand;* InterAmerican University, Bayamon, PR.

SUNDAY, 26 October

6:30-8:00 BREAKFAST (Dining Hall)

SESSION 5. CASTES AND COLONY FOUNDING

Morning moderator – *Colin Brent*

Sunday, 8:00 am to 11:15 am

28. 8:00 Invited Talk: ***Ed Vargo***

29. 8:30 **A comparison of nest characteristics across three species of harvester ant that differ in colony founding strategy.** *Brittany Enzmann* , University of California, LA

30. 8:45 **A role for maternal effects on caste determination in a facultatively social sweat bee (*Megalopta genalis*)?** Karen M. Kapheim(1)1, Adam R. Smith(2), Kate Ihle(3), Gro V. Amdam(3), William T. Wcislo(2), Peter Nonacs(1); (1)Department of Ecology and Evolutionary Biology, University of California, Los Angeles, CA 90095, (2)Smithsonian Tropical Research Institute, Unit 0948, APO AA 34002, Panama, (3)Social Insect Research Group, School of Life Sciences, Arizona State University, Tempe, AZ 85287

31. 9:00 **Larval castration in a ponerine ant: a mechanism for the suppression of larval queen development through aggression.** *Clint Penick*, Arizona State University

32. 9:15 **Origin and evolution of the dependent lineages in the genetic caste determination system of *Pogonomyrmex* spp.** *Anu Vihavainen*¹, *Pekka Pamilo*^{1,3}, *Robert A. Johnson*², *Robert E. Page*², and *Jurgen Gadau*²; (1) Department of Biology, University of Oulu, Linnanmaa, P.O. Box 3000, Finland; (2) School of Life Sciences, State University of Arizona, USA; (3) Department of Biological and Environmental Sciences, University of Helsinki, Finland.
33. 9:30 **Nutritional levels of wasps during the different stages of the colony cycle.** *Timothy M. Judd*, *Roxane Magnus*, and *Matthew Fasnacht*, Southeast Missouri State University
34. 9:45 **The trophic ecology of castes in an ant colony.** *Chris R. Smith*, School of Life Science, Arizona State University
- 10:00 BREAK
35. 10:15 **Lineage ratios in the *Pogonomyrmex* seed-harvester ants with genetic caste determination.** *Kirk E. Anderson*; University of Arizona
36. 10:30 **Antennal drumming and larval development in *Polistes*.** *Robert L. Jeanne*; Department of Entomology, University of Wisconsin.
37. 10:45 **From conflict to cooperation: colony founding by unrelated ant queens.** *Rick P. Overson*, *Jennifer Fewell*, *Stephen Pratt*, *Rebecca Clark*, and *Juergen Gadau*; Arizona State University
38. 11:00 **My house, my rules: Acceptance of alien conspecifics in the paper wasp *Mischocyttarus mexicanus*.** *Floria Mora-Kepfer*, University of Miami

11:15 - 1:00 LUNCH (Dining Hall)

SESSION 6. LIFE HISTORIES

Afternoon moderator – *Ed Vargo*

Sunday, 1:00 pm to 5:15 pm

39. 1:00 **Life history trade-offs in social insects.** *Bert Rivera-Marchand*; InterAmerican University, Bayamon, PR

40. 1:15 **Resin collection as a colony-level immune defense in honey bees.** *Mike S Simone (1), Jay Evans (2) and Marla Spivak (3).* (1)Dept. Ecology, Evolution and Behavior, (2) USDA-ARS Bee Research Lab, Beltsville, MD, (3) Dept. Entomology, University of Minnesota
41. 1:30 **Life history and social factors constrain independent reproduction in a primitively eusocial wasp.** *Hans Kelstrup, Daniele Fanelli and Seirian Sumner*; *project leader
42. 1:45 **Effects of food limitation and the environment on colony performance in the Fungus Gardening Ant, *Trachymyrmex septentrionalis*.** *Jon Nicholas Seal*, Universität Regensburg
43. 2:00 **The energetic costs of stereotyped behavior in the paper wasp, *Polistes dominulus*.** *Susan A. Weiner, William A. Woods, Jr, Philip T. Starks*
44. 2:15 **Social scaling in the seed-harvester ant *Pogonomyrmex californicus*.** *Tate Holbrook, James S. Waters, Jon F. Harrison, and Jennifer Fewell*; Arizona State University
45. 2:45 **How changing population dynamics affect honey bee colony performance.** *Devrim Oskay¹, Sam Hapke,¹ Muhsin Doğaroğlu², Walter S. Sheppard¹*; ¹ Washington State University, Department of Entomology. Pullman WA, USA; ² Namik Kemal University, Department of Animal Science . Tekirdağ, TURKEY
- 3:00 BREAK
46. 3:15 **Enhanced colony growth rates in GCD populations of *Pogonomyrmex* harvester ants.** *S. Helms Cahan, A.B. Daly, T. Schwander*; University of Vermont
47. 3:30 **Rate of behavioral development differences in three honey bee subspecies.** *Gun Koleoglu¹, Aykut Kence¹, Meral Kence¹, Tugrul Giray²*; (1) Middle East Technical University, Ankara, Turkey; (2) University of Puerto Rico, San Juan, PR
48. 3:45 **Behavioral responses of two subterranean termite species (Isoptera: Rhinotermitidae) to instant freezing or chilling temperatures.** *Xing Ping Hu*; Department of Entomology, Auburn University.

49. 4:00 *Melittobia* parasitoid wasps display unusual behavior and life history attributes that preage eusociality. Robert M. Matthews, University of Georgia

50. 4:15 Consequences of a cryptic invasive ant (*Pachycondyla chinensis*)- Local extinctions mediated by behavior? Benoit Guénard, Rob R. Dunn, and Jules Silverman; Department of Biology, North Carolina State University.

51. 4:30 Dispersal and mate choice in the Formosan subterranean termite. *Claudia Husseneder*; Department of Entomology, LSU AgCenter

52. 4:45 Intraspecific color pattern polymorphism and individual recognition abilities in paper wasps" Michael Sheehan and Elizabeth Tibbetts; Ecology and Evolutionary Biology, University of Michigan

53. 5:00 Volatiles from diseased brood elicit honey bee hygienic behavior. Jodi Swanson (1), Baldwyn Torto (2), Steve Kells (1), Marla Spivak (1). (1) Dept Entomology, University of Minnesota, (2) USDA-ARS Chemistry Research Unit, Gainesville, FL

5:15-6:30 FREE TIME

6:30-7:30 DINNER (Dining Hall) FOLLOWED BY MIXER (Meeting Hall)

MONDAY, 27 October

6:30-8:00 BREAKFAST (Dining Hall)

8:30 Depart for airport or field-trip.