

BEACON

Congress

August 10-12, 2011



PROGRAM

BEACON Headquarters
1441 Biomedical & Physical
Sciences Building
Michigan State University
East Lansing, MI 48824
(517) 884-2555

2011 BEACON Congress

SEE NOTES at end of schedule!

Room numbers are given before title of each session; all are in Biomedical & Physical Sciences Bldg.

| Tuesday, August 9 | | | | |
|---|--|--|--|--|
| Room 1455: Arrival at Kellogg Center, Pizza at BEACON HQ, 6 pm (optional) | | | | |
| Wednesday, August 10 | | | | |
| 8:00 am | 1455: Catered breakfast at BEACON HQ | | 1442: Exec. Comm. Breakfast Mtg | |
| 9:00 am | 1410: Plenary: Welcome, Overview of Congress; Status re Strategic Plan; Upcoming Report to NSF and Associated Reporting Tasks | | | |
| 10:00 am | Break | | | |
| 10:30 am | 1425: Sandbox session: Evolution of Evolvability, Robustness and Modularity (Adami) | 1420: Project Updates (Tan/McKinley, Konikoff, Shelton, Waite, Cheng) | 1455A: Sandbox session: Genomic Analysis Tools (Brown) | 1442: EHRD Committee Meeting |
| 12:00 pm | Catered lunch at BEACON HQ | | | |
| 1:30 pm | 1425: Sandbox session: Evolution of communication and cooperation (McKinley) | 1415: Project Updates (Covert, Kurzеха/Warner, Chaumont, Karpov, Workineh) | 1455A: Tutorial on AvidaEd (Pennock) | 1442: Diversity Committee Meeting |
| 3:00 pm | Break | | | |
| 3:30 pm | 1425: Sandbox session: Building Blocks for Evolution of Intelligence (Pennock) | 1415: Sandbox Session: Gene Regulatory Networks in Digital Evolution (Ofria) | 1455A: Tutorial: SEEDS platform for evol. & ecol. simulations (Connelly) | 2245: Evolution in Museums and Public Outreach (Working Group) |
| 6:00 pm | Catered dinner at BEACON HQ & Poster Session (Atrium) | | | |
| Thursday, August 11 | | | | |
| 8:00 am | 1455: Catered breakfast at BEACON HQ | | 1442: Exec. Comm. Breakfast Mtg | |
| 9:00 am | 1410: Plenary: Overview of BEACON Education/Outreach & Diversity: graduate, undergrad, K-12 and museum; Robin Smith on doing outreach to the media | | | |
| 10:00 am | Break | | | |
| 10:30 am | 1410: Sandbox session: Linking Metagenomics/ Bioinformatics w/ Evol. in Action (Teal) | 1425: Project Updates (Sleight, Andrykovich, Schrum, Momeni, Adams) | 2245: Sandbox session: Getting started with Knowledge Transfer to Industry (Cheng) | 1455A: Joint EHRD / Diversity Committee Meeting |
| 12:00 pm | 1455: Catered lunch at BEACON HQ | | | |
| 1:30 pm | 1410: Sandbox session: NESCent K-12 Evolution Ed. For Underrep. Minorities RFP (Mead/Clarke) | 3280: Sandbox Session: Raising Stature of Applied Evol. in Academia (Miikkulainen) | 2245: Tutorial on Evol. Game Theory (Adami, Hintze) | 1455A: Admin. (Budget) Meeting |
| 3:00 pm | Break | | | |
| 3:30 pm | 1410: Reports by Sandbox Scribes | 1455A: Project Updates (Shiu, Rajagopalan/Rawal, Soule, Wagner, Williams) | 3280: Tutorial: Responsible Data Storage and Archiving (Dworkin) | 1415: BEACON Grad / Pdoc Association Meeting |
| 6:00 pm | Catered Dinner at Home of Drs. Titus Brown & Tracy Teal | | | |

| Friday, August 12: External Advisory Committee Meeting | |
|--|--|
| 8:00 am | 1455: Catered breakfast at BEACON HQ |
| 9:00 am | 1415: Welcome and overview to External Advisory Committee; What is BEACON? Overall structure, goals, budget request process, reporting process, etc. (Goodman) |
| 9:45 am | Break |
| 10:00 am | 1415: Research presentations to EAC (Ofria et al.) |
| 11:30 am | 1415: Education/Outreach/Diversity presentations to EAC (Mead, Clarke et al.) |
| 12:45 pm | 1455: Lunch; virtual walkthrough of BEACON Exhibit Hall in MSU Museum (Fick); BEACON participants begin to depart (except for leadership) |
| 2:15 pm | 1425: Administrative presentations to EAC: communications, organizational evaluation process; RCR; knowledge transfer (Whittaker, Cheng) |
| 3:30 pm | 1425: Question and answer period |
| 6:00 pm | Dinner/Social hour at Rob Pennock's House |
| Saturday, August 13 (EAC and Leadership Only) | |
| 8:00 am | 1455: Catered breakfast at BEACON HQ |
| 9:00 am | 1442: EAC meets in conference room to draft report; leadership available for questions |
| 12:00 pm | 1455A: EAC meets over lunch with BEACON leadership to make recommendations |
| 1:00 pm | EAC departs |

NOTES:

Impromptu Working Group Meetings:

We have a number of rooms reserved throughout the Congress that will be available for spontaneous collaboration planning! Sign up for a room at BEACON HQ in room 1455.

Sandbox Sessions:

We need a facilitator/scribe for each session, to make a brief report on the session on Thursday afternoon. We have indicated suggested names for each session, but those may be changed at the session.

The **External Advisory Committee meeting** (Friday/Saturday a.m.) is only for a small number of Congress attendees. If you are not presenting to the EAC or on the Executive Committee, you may plan to depart Thursday evening or Friday. Friday morning's EAC meeting will be open, but Friday afternoon's meeting will not.

Shuttle buses will run between Kellogg Center (lodging) and BEACON HQ (BPS Building):

Tuesday evening: 5:30pm – 8:00pm

Wednesday morning: 7:30am – 9:00am,

Wednesday evening: 8:00pm – 9:30pm

Thursday morning: 7:30am – 9:00am

Thursday evening: 5:00pm – 5:30pm

THEN Kellogg Center—Titus Brown's home, 5:30pm – 10:00pm

Friday morning: 7:30am – 9:00am

Friday noon: 12:30pm – 1:30pm

(Friday evening – ride with locals to/from Rob Pennock's home)

BEACON Congress 2011
Schedule for Project Update Sessions

| Wednesday, 10:30 am – 12:10 pm, BPS 1420 | |
|---|--|
| 10:30 | Xiaobo Tan, Phil McKinley, Jenny Boughman, <i>Evolving robotic fish</i> |
| 10:50 | Charlotte Konikoff, <i>Hemichordata Global Biodiversity and Evolution</i> |
| 11:10 | Joseph Shelton, <i>Genetic and Evolutionary Biometrics: Feature Extraction from a Machine Learning Perspective</i> |
| 11:30 | Adam Waite, Wenying Shou, <i>Cheaters Hasten the Evolution of Cooperation</i> |
| 11:50 | Betty Cheng, Adam Jensen, Heather Goldsby, and Ed Nelson, <i>Detecting Hidden Unwanted Properties in Onboard Software for Automotive Systems</i> |
| Wednesday, 1:30 pm – 3:10 pm, BPS 1415 | |
| 1:30 | Art Covert, Claus Wilke, <i>Undergraduate Research Education in Computational Biology</i> |
| 1:50 | Rachel Kurzeja and Elizabeth Warner, <i>Natural Selection in Damselflies</i> |
| 2:10 | Nicolas Chaumont, Chris Adami, Jacob Walker, <i>Evolution of autonomous foraging in a 3D environment</i> |
| 2:30 | Igor Karpov, Vinod Valsalam, Risto Miikkulainen, <i>Human-Assisted Neuroevolution Through Shaping, Advice and Examples</i> |
| 2:50 | Abrham T. Workineh, <i>A New Bidding Strategy in LCS Using Loan and Bid History</i> |
| Thursday, 10:30 am – 12:10 pm, BPS 1425 | |
| 10:30 | Sean Sleight, Herbert Sauro, <i>Improving mutational robustness and error detection in genetic circuits</i> |
| 10:50 | Kristin Andrykovich, Billie Swalla, <i>Molecular Basis of Notochord loss in <i>Molgula occulta</i></i> |
| 11:10 | Jacob Schrum, <i>Evolving Multimodal Networks for Multitask Games</i> |
| 11:30 | Babak Momeni, Wenying Shou, <i>Signatures of Cooperation in Microbial Communities</i> |
| 11:50 | Josh Adams, <i>GEB Hacking: A New Security Threat on the Horizon?</i> |
| Thursday, 3:30 pm – 5:10 pm, BPS 1455A | |
| 3:30 | Shin-Han Shiu, <i>Evolution of gene expression under stress conditions in plants</i> |
| 3:50 | Padmini Rajagopalan, Aditya Rawal, Risto Miikkulainen, Kay Holekamp, Marc Wiseman, <i>Factors Affecting the Evolution of Cooperation in Predators during Hunting</i> |
| 4:10 | Terence Soule, <i>Hyenas vs. Lions: Cooperation and Coordination</i> |
| 4:30 | Aaron Wagner, Rob Pennock, Charles Ofria, <i>Digital Predators Update: Navigating, Learning and Cooperating in Spatial Contexts</i> |
| 4:50 | Barry L. Williams, Kyle Safran, Carlos J. Anderson, <i>The relative importance of recombination, adaptation, and long branch attraction in phylogenetic inference: artificial life is a potential breakthrough for advancing the field of experimental phylogenetics</i> |

**BEACON Congress 2011
Poster Session,
Wednesday, August 10, 6:00 pm
BPS Atrium**

| Presenter | Title |
|---|---|
| Carlos Anderson | The rate of compensatory adaptation |
| Erkin Bahceci | Evolving Competitive Multi-Agent Search Strategies on Dynamic Landscapes |
| Frank Bartlett | Modeling the evolution of central-place foraging in digital organisms |
| Zachary Blount | Proposed Test of Speciation in an Experimental Population of <i>E. coli</i> Following the Evolution of a Key Innovation |
| Christopher Chandler | Experimental evolution of the <i>Caenorhabditis elegans</i> sex determination pathway |
| Chi-Chun Chen | Incipient evolution of a synthetic cooperative system |
| Idelle Cooper and Tom Getty | Recent range shifts and the role of sexual signals in premating isolation of sympatric <i>Calopteryx</i> damselflies |
| Iniyana Ganesan | Nitrogen Deposition Selects for Less Mutualistic Rhizobia and Reduces Plant Growth in the Wild |
| Jasmine George and Anne Royer | Genetic Architecture of Stamen loss in <i>A. thaliana</i> |
| Krystal Harrison, Toria Davis, and Raffica La Rosa | Measuring Selection through Male Fitness: testing molecular markers for use in paternity analysis |
| Randall Hayes | Variation Selection Inheritance: a Public Outreach Podcast on Evolution by the BEACON Center for the Study of Evolution in Action |
| Wendy Johnson | Observing Natural Selection in the Classroom |
| Igor Karpov | Computational Intelligence in Game Design, stream poster for Freshman Research Initiative |
| Justin Meyer | Repeatable and contingent processes promote the evolution of phage lambda to exploit a novel receptor |
| Jeff Morris | The Black Queen Hypothesis: Evolution of Mutualism Through Adaptive Gene Loss |
| Joshua Nahum | Survival of the Weakest demonstrated in a structured, Rock-Paper-Scissors community of <i>E. coli</i> |
| Lena Perry | <i>Ptychodera flava</i> HOX Gene Organization |
| Matthew Rupp | The Evolution of Mutation Bias in Digital Organisms |
| Terence Soule & Robert Heckendorn | Developmental Scalable Hierarchies for Multi-Agent Swarms |
| Caroline Turner | Cross-feeding specialists evolve to co-exist with citrate metabolizing <i>E. coli</i> |
| Emily Weigel & Robin Tinghitella | Mate Availability and Hybridization in Threespine Stickleback |
| Michael Wisler | The view from 50,000 generations: Analysis of fitness trajectories in a Long Term Evolution Experiment in <i>Escherichia coli</i> |
| Luis Zaman | Investigating Parasite Driven Diversity in Digital Organisms |
| Model Wudma Zerfu & Carrie Glenney | The Evolution of Colicinogenic <i>Escherichia coli</i> in the Absence of Competitors |
| <i>A selection of posters from the 2011 BEACON High School Residential Program will also be on display.</i> | |