

## **AGENDA**

### **Origins of Novelty in Biological, Social, and Technological Systems: Towards a Theory of Innovation**

**A Santa Fe Institute Workshop**

**October 13<sup>th</sup> – October 17<sup>th</sup>, 2014**

**Santa Fe Institute, Santa Fe, New Mexico USA**

**Hosts: Jennifer Dunne (SFI Resident Faculty , SFI Chair of Faculty), José Lobo (Arizona State University), Manfred Laubichler (Arizona State University, SFI External Faculty), Andreas Wagner (University of Zurich, SFI External Professor, SFI Science Board)**

Dear Workshop Participant:

As the dates of the workshop are fast approaching we want to share the workshop's agenda with you, as well as convey what we intend the style and tone of workshop's discussions to be like. The agenda revolves more around group discussions and working sessions than around presentations; the goal of the discussions is to explore whether there are enough grounds, empirical and conceptual, to build a general theory for the origins of novelty. At the end of each day the organizers will assess how the day's proceedings went, and the agenda for the next day can be modified in response to the suggestions of the participants as the discussions unfold.

*We ask each of you to share one article (not necessarily authored by you) that you strongly feel that, if read by everyone else, would enrich the discussions. (Send the pdf file to José and he will place it in the workshop's wikipedia.)*

The workshop's first day will be open to some non-workshop participants invited by the Institute's leadership (Science Board and Board of Trustee members, Business Network members, donors and potential donors). The first day's presentations are intended to seed discussions and to focus attention on how novelty is treated as a problem in different research domains. For those who are presenting during the first day or during the other days please note that your presentations need not be fancy as the overall tenor of the workshop is rather informal. Hopefully the discussions will be free-flowing, probing, detailed, and yet somewhat precise. Everyone should come prepared to question and be questioned (as well as to enjoy the wonderful Northern New Mexico Fall weather).

#### **Monday (10/13)**

8:30am - 9:00am: light breakfast and registration

9:00am - 9:15: Welcome (Jerry Sabloff, Bruce Bertram) [15 mins]

9:15am - 9:35am: Introduction to the Workshop (Jennifer Dunne) [20 mins]

9:40am - 10:10am: Innovations in Life's Evolution (Andreas Wagner) [30 mins]

10:15am - 10:30am: Break [15 mins]

10:35am - 11:05am Invention: From Whence Technological Novelty? (Jose Lobo) [30 mins]

11:10am - 11:50pm: Discussion (chaired by Jessika Trancik) [40 mins]

12:00pm - 1:20pm: Lunch [80 mins]

1:30pm - 2:00pm: Novelty in Ecology --- And Who Needs A Theory Anyway? (Pablo Marquet) [30 mins]

2:05 - 2:35pm: Not by Genes Alone: Cultural Evolution (Robert Boyd) [30 mins]

2:40pm - 3:10pm: Technological Evolution: Has the Metaphor Been Too Abused? (Douglas Erwin) [30 mins]

3:15pm - 3:30pm: Break [15 mins]

3:35pm - 4:05pm: It Takes Energy to Innovate (Geoffrey West) [30 mins]

4:10pm - 5:55pm: Discussion (chaired by Deborah Strumsky) [45 mins]

5:00pm - 5:30pm: Common Threads? (Manfred Laubichler) [30 mins]

5:30pm: end of the symposium and reception at SFI

*During Tuesday and Wednesday each participant has the option, but not the obligation, to present "on the spot" on some piece of data or background material to help focus and advance the discussions. (Absolute limit: 15 minutes.)*

## **Tuesday (10/14)**

8:30am - 9:00am: light breakfast

9:00am - 10:30am: moderated discussion (chaired by Manfred Laubichler)

10:30am - 10:45am: break

10:45am - 12:00pm: moderated discussion (chaired by a volunteer participant)

12:00pm - 1:30pm: lunch

1:30pm - 3pm: moderated discussion (chaired by Jennifer Dunne)

3:00pm - 3:30pm: Tea break

3:30pm - 5:00pm: moderated discussion (chaired by a volunteer participant)

### **Wednesday (10/15)**

8:30am - 9:00am: light breakfast

9:00am - 10:30am: moderated discussion (chaired by Andreas Wagner)

10:30am - 10:45am: break

10:45am - 12:00pm: moderated discussion (chaired by a volunteer participant)

12:00pm - 1:30pm: lunch

1:30pm - 3pm: moderated discussion (chaired by Jose Lobo)

3:00pm - 3:30pm: Tea break

3:30pm - 5:00pm: moderated discussion (chaired by a volunteer participant)

### **Thursday (10/16)**

*Working/writing groups: participants will self-organize into 5 or 6 working groups (chaired by young researchers to be selected/asked during the previous days) tasked with discussing and articulating why a general framework for explaining the origins of novelty across domain is/is not a feasible and worthy goal. The arguments and reasoning should be summarized in a brief (5 pages maximum) essay to be shared with everyone else on Friday.*

This day light breakfast will be provided from 8:30am to 9am and lunch from noon to 1pm; but the rest of the schedule is open -- participants are free to work at the Institute or anywhere in town they prefer to.

### **Friday (10/17)**

8:30am - 9:00am: light breakfast

9:00am – 12:00pm: *aggregation and integration* --- brief presentations of working groups reports; assessment of whether a sustained effort at building a theory of novelty is a worthwhile effort, and if so, who would want to work on it and how would it fit with SFI programming; sketch a work plan for the next steps; decision on a follow-up workshop.

12:00pm – 1:30pm: lunch and end of workshop