



Call for Papers

First International Conference on the

Evolution and Development of the Universe

Wed-Thu, 8-9 October 2008,
Ecole Normale Supérieure, Paris, France

THEME

The underlying paradigm for cosmology is theoretical physics. The EDU research community explores how it might be extended by including insights from evolutionary developmental biology. In the neo-Darwinian paradigm, adaptive evolutionary development allows the production of ordered and complex structures. More specifically, we can distinguish evolutionary processes which are contingently adaptive and developmental processes which produce statistically predictable structures and trajectories internal to the developmental cycle. By analogy with two genetically identical twins, would two parametrically identical universes exhibit both unpredictable evolutionary differentiation, and predictably similar developmental outcomes between them? More generally, can we model our universe as an evolutionary developmental system?

The conference provides an opportunity for those working across these topics to exchange ideas, results and resources. To this end, the conference will present a selection of current work in the field, highlight new directions for investigation, and present high-profile keynote speakers. See <http://evodevouniverse.com> for more details.

SCIENTIFIC COMMITTEE

- [James N. Gardner](#), a complexity theorist studying philosophy and theoretical biology. (Portland, OR, USA)
- [Carlos Gershenson](#), a complexity theorist studying evolution, ALife, and cognition. (Boston, MA, USA)
- [Francis Heylighen](#), a systems theorist focusing on the evolution of complexity. (Brussels, Belgium)
- [David Holcman](#), a mathematician and computational biologist modeling microstructure. (Paris, France)
- [Laurent Nottale](#), a cosmologist and pioneering theorist in scale relativity and fractal space-time. (Paris, France)
- [John Smart](#), a systems theorist and scholar of accelerating change. (Mountain View, CA, USA)
- [Clement Vidal](#), a philosopher and systems thinker studying evolutionary cosmology. (Brussels, Belgium)
- [Peter Winiwarter](#), a scholar of complex systems, neural networks and evolution. (Boursay, France)

EXTENDED ABSTRACT/PAPER FORMAT

Abstracts and **papers** are welcome in areas including: cosmology, biology, complexity theory, nonlinear mathematics, systems theory, information theory, computer science, philosophy, and related disciplines.

There are two submission options:

- **Extended Abstracts** are 500-1000 words.
- **Papers** are 5000-15000 words, including a 100-500 word Brief Abstract.

Use the online submission system (<http://tinyurl.com/3z4jez>) to upload your proposed abstract or paper.

PUBLICATION

Accepted papers will be published as a special issue of the interdisciplinary journal [*Foundations of Science*](#). An "open commentary" will be organized after the conference, adding value to the presented papers.

THEMES

- Anthropic bias and observer selection effects.
- Anthropic, fine-tuning, and multiverse/ensemble models in cosmology.
- Acceleration studies at the universe and subsystem scales.
- Astrobiology, Fermi paradox, and SETI.
- Complexity, emergence, ergodicity, and nonlinear science models with organic and computational features.
- Computational and artificial life inspired models and analogies applied at the universe and subsystem scales.
- Cosmology w/organic features, such as cosmological natural selection (CNS) and CNS w/intelligence (CNS-I).
- Directionality, macrodevelopment, and convergent evolution in biological systems.
- Evolutionary and developmental processes in evo-devo and theoretical biology.
- Evolutionary and developmental processes in non-biological systems (physical, chemical, cultural, technol.).
- Hierarchy theory, modularity, and self-organization at the universe and subsystem scales.
- Information theory of evolution and development, intelligence theory at the universe and subsystem scales.
- Network theory and neural networks as a paradigm to explain self-organization of complex networks.
- Non-equilibrium dissipative structures at the universe and subsystem scales.
- Philosophy and systems theory with organic and computational features at the universe and subsystem scales.
- Philosophical and epistemological status of cosmological and speculative theories.
- Probability distributions, power laws, and statistical predictability at the universe and subsystem scales.
- Scale relativity, scale invariance and self-similarity models at the universe and subsystem scales.
- Self-reference, iteration, and recursion models at the universe and subsystem scales.
- Systems models relating physical, chemical, biological, cultural, and technological (PCBCT) subsystems

Themes outside the scope of our community:

- Non-naturalistic orthogenesis or teleology, intelligent design, supernaturalism, and theology.

IMPORTANT DATES

- **30th July** - Deadline for submission of abstracts and paper proposals (extended from 15 July).
- **15th August** - Notification of conditional acceptance
- **29th September** - Deadline for the receipt of final papers
- **8-9 October** - EDU Conference, Paris, France.

ORGANIZATION

Alain Prochiantz (chair), Clément Vidal, John Smart (organizing committee).

Host institution: Ecole Normale Supérieure de Paris

VENUE

The conference will be held in Paris, one of the most popular tourist destination in the world. The city has a global influence on education, entertainment, media, fashion, science and the arts. Attendees will be warmly encouraged to spend Friday, Oct 10th sightseeing in self-convened, self-hosted groups. Lists of local options will be provided.

CONTACT

Further info on the conference program, travel and accommodations will be posted to evodevouniverse.com.

For questions about the submission and reviewing process, please contact John Smart (johnsmart@accelerating.org) and/or Clement Vidal (clement.vidal@philosophons.com).