Call for Papers

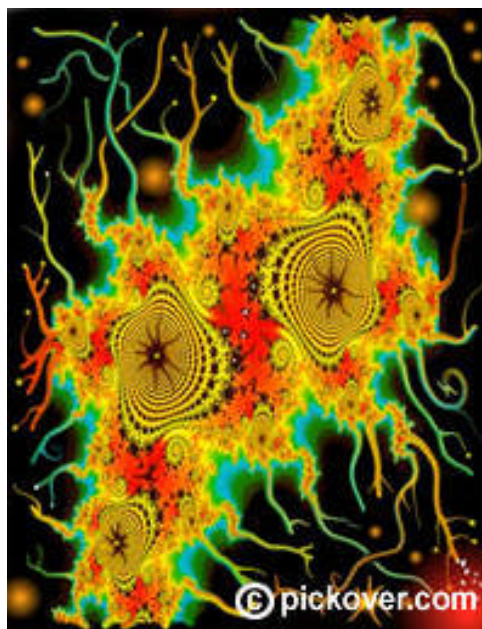## Artificial Life IX

The Ninth International Conference on the Simulation and Synthesis of Living Systems

Boston, USA, 12-15 September 2004

http://www.alife9.org

ELECTRONIC SUBMISSION DEADLINE: JAN 30th 2004

Artwork © pickover.com

Artificial life is the interdisciplinary enterprise investigating the fundamental properties of living systems through the simulation and synthesis of life-like processes in artificial media. The Artificial Life IX conference will showcase the best current work in this area of research, highlight promising new avenues of investigation, provide leading edge workshops, and present top keynote speakers. All authors of conference papers are encouraged to explain how their work sheds light on the fundamental properties of living systems and makes progress on important open questions. Paper submissions (6 pages single spaced) are welcome in all areas of the field, including:

Origin of life, self-organization, self-replication
Astrobiology, exobiology, artificial chemistry, autocatalytic systems, synthetic and supramolecular chemistry, molecular self-assembly, molecular information processing, nanotechnology

Development and differentiation
Multicellular development, gene-regulation networks, natural and artificial morphogenesis

Evolutionary and adaptive dynamics
Pattern and mode of evolution, radiation and extinction modes of selection (natural, sexual, neutral, kin, etc.),artificial ecologies, evolutionary games, molecular (e.g. RNA) evolution, immune systems evolvability, cultural evolution and learning, coevolution

Applications of ALife technologies
Genetic product design. ALife-inspired art, self-repairing and autonomic systems, evolving MEMS technology, financial and economic agents, adaptive gaming and educational technologies

Robots and agents
Bio-inspired robots, embodied cognition, autonomous and adaptive robots, software agents, evolutionary robotics

Communication, cooperation and collective behavior
Emergent collective behaviors, swarm intelligence evolution of communication and cooperation, social and linguistic systems, economic systems, social-technical systems

Simulation and synthesis tools and methodologies
Clarification and evaluation of ALife methodologies, new simulation languages, experimental tools, simulative worlds for ALife research, analysis and visualization tools for large data sets.

The broader context
Mathematical and philosophical foundations and implications of ALife, ethical and social implications of ALife

New and creative syntheses
Novel work illustrating fundamentally new approaches.

Both oral and poster presentations will be published in a single volume by MIT Press. ALife 9 will also include a series of workshops and tutorials, which you are invited to propose. The conference web page, www.alife9.org, will provide the most current information about the meeting and venue.