

**Keynote Speaker**

## **Emergence of Autonomous Motion**

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### **ABSTRACT**

Self-reproduction has been taken as an icon of what is life especially in theoretical biology. In the study of Artificial life the notion of self-reproduction has been investigated with different computational models such as Langton's loop. Here in this talk, I put stress on an importance of autonomous motion instead of self-reproduction. When a proto-cell unit starts to move around, the surrounding environment can be differentiated, which causes the cell unit to avoid dislikes and approach to likes. Therefore, emergence of autonomous motion must precede self-reproduction.

Trying to get a firm basis of the idea of autonomous motion, we examined the potential mechanism both theoretically and experimentally. In this talk, I overview those trials and discuss the alternative scenario of protocells based on autonomous motion.