Universal Chemical Machine: Continuous Increase of Complexity and Chemical Evolution

Jerzy Maselko[1*] and Jim Pantaleone[2]

ABSTRACT In our experiments, we observed spontaneously growing structures with continuously increasing complexities, accompanied by the formation of cells and multicellular chemical organisms that behave as a whole. These systems produced chemical engines that may perform complex tasks. During the process of self-construction, hydrodynamics shapes different chemical structures by moving chemical compounds into proper places. Nonlinear Chemical Dynamics controls chemical processes in time. Emergence continuously leads to new entities and intelligent behaviors. This may continue infinitely. The cell connects with other cells. All of it is achieved by continuously growing networks of chemical and physical processes. We report self-construction of a Universal Chemical Machine that can produce an infinite number of chemical entities. Most presented chemical organisms are self-created, starting from two simple inorganic chemicals, suggesting that it is the most important property of matter. Experiments reported here will further help understanding the origin of life and developing new technologies based on self-construction.