A Top Down Chemically Embodied Artificial Life Computation

Leroy (Lee) Cronin

Regius Chair of Chemistry
School of Chemistry
University of Glasgow, Glasgow, G12 8QQ, UK
Lee.Cronin@Glasgow.ac.uk

Keynote Abstract

In my laboratory we are interested in creating the conditions that allow an artificial life form to emerge. But how do we know when our chemical system is really on the path to life? Will bottom- up (prebiotic) and top-down (programmed) be intrinsically different types of artificial life forms? In this lecture I will describe three areas of work in my laboratory: 1) how to measure how alive an artificial life form is; 2) our attempts to emerge a bottom up life form; 3) a top down chemically embodied life form. To achieve the top-down life form we had to build a chemical computer that was able to be digitally programmed, error correcting, and ability to do computations using a chemical-logic-machine. We believe this represents the first example of chemical artificial life.