

## Origin of Life

Many theories have been advanced to explain the origin of Life, and we will review some of them. Today science believes that Life has emerged from a prebiotic broth, where most or even all of the building blocks of Life were already present. However, anything comparable to the dynamics of 'real' Life has not been realized so far, neither on a computer nor experimentally, in a test tube. This talk tries to expose a general understanding of Life from the physicist's viewpoint. We give arguments why artificial Life seems difficult to realize without developing a thorough understanding of autocatalysis. Chemistry has unintuitive properties. Unfortunately, today there is only limited data available on the statistics of chemical reactions, however, with modern equipment, getting data to understand catalysis might be simpler than understanding biology. The role of information in molecular reproduction needs to be understood as well. Molecular Darwinism is supposed to increase the sophistication and complexity of Life, and one has to understand the constraints that appear with several competing autocatalysts that necessarily emerge from coexisting, reproducing entities. Ultimately the interdisciplinary quest for artificial Life will lead to an interesting chapter of science in the future.