

Synthetic Life in Extreme Conditions

Edoardo Milotti¹, Sabrina Stella², Roberto Chignola³

We have developed a program that simulates the behavior of individual cells and of their interactions in a multicell environment, with the aim of providing a detailed description of the growth of tumor spheroids. This simulation framework also includes harsh conditions like highly acidic and hypoxic environments that are common in human tumors. In turn, this means that the framework can give useful indications on the behavior of primitive eukaryotes in harsh environments. Here we discuss some specific simulations to this end, and the challenges to develop a framework of wider usability.

¹ Dipartimento di Fisica, Università di Trieste, and INFN – Sezione di Trieste, Trieste, Italy

² Dipartimento di Fisica, Università di Trieste, and INFN – Sezione di Trieste, Trieste, Italy

³ Dipartimento di Biotecnologia, Università di Verona, Verona, Italy