

# Recent Computability Models Inspired from Biology: DNA and Membrane Computing

**Gheorghe PĂUN**

Institute of Mathematics of the Romanian Academy  
PO Box 1-764, 70700 București, Romania, and  
Rovira i Virgili University  
Pl. Imperial Tàrraco 1, 43005 Tarragona, Spain  
E-mail: gpaun@imar.ro, gp@astor.urv.es

**Mario J. PÉREZ-JIMÉNEZ**

Department of Computer Science and Artificial Intelligence  
Sevilla University  
Avenida Reina Mercedes s/n, 41012 Sevilla, Spain  
E-mail: Mario.Perez@cs.us.es

**Abstract.** We briefly present two areas of natural computing, vividly investigated in the recent years: DNA computing and membrane computing. Both of them have the roots in cellular biology and are rather developed at the theoretical level (new concepts, models, paradigms of computer science, with mathematical and epistemological significance have been considered in this framework), but both areas are still looking for implementations of a practical interest.

**Keywords:** Computer Science, Mathematics, Turing computability, Biochemistry, DNA computing, Membrane Computing.