

## **Evolution, Information and Computation: From Living to Non-Living Matter**

PACE Workshop  
European Center for Living Technology  
Venice, Italy  
23rd - 26th May 2005  
Scientific Chair: Prof. Ricard Solé - Universitat Pompeu Fabra - Spain

The workshop will explore the emergence and definitions of information and computation in protocellular systems.

The topics to be explored include:

1. information and information dynamics in biomolecular systems,
2. barriers to information and computation derived from noise and nanoscale constraints,
3. how genome complexity in simple protocells affects and facilitates evolution and computation,
4. coevolution of protocells and parasites,
5. communication among protocells both in vitro and in silico.

Since computation is one of the fundamental traits that distinguishes biological from physical systems, it is of great importance to understand how computation (defined in terms of processing information and responding to external changes) emerges in molecular replicating and reproducing systems. Understanding its emergence and potential limitations will provide a great insight into what should be expected from artificially revolved protocells and protocell swarms. Understanding the potential computational features of these systems will also help design the appropriate interfaces allowing artificial cells to be programmed.

**Reservation and Participation Document** – please resend to [bernfran@unive.it](mailto:bernfran@unive.it) .