ESF theme school in the framework of the Funcdyn program

'Simulation Tools applied to Calcium Dynamics'

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Dates :14th-19th March 2010

Location : Heidelberg, Germany

Main objective of the theme school

It is known for more than 20 years that intracellular Ca^{2+} dynamics is highly organized, both at the temporal and at the spatial level. Experimental and theoretical work also uncovers the need to take stochastic aspects into account for a detailed approach of Ca^{2+} dynamics.
Besides its intrinsic interest, Ca^{2+} dynamics thus provides an excellent and realistic system to illustrate the usefulness and interest of modelling. The aim of the proposed theme school is to introduce students to the techniques of computational modelling by using Ca^{2+} dynamics as a prototypical system. Simulations will be performed using the software 'Copasi' (Complex Pathway Simulator) that allows to deal with ordinary differential equations and the Gillespie's algorithm, as well as using MatLab for dealing with PDEs. In the mornings, talks will be given by experimentalists and modellers, while afternoons will be devoted to tutorials and practical exercises.

Number of participants:

To allow each student to perform practical work on a computer, the number of participants will be limited to 30-35.