Coupled Mathematical Models for Physical and Biological Nanoscale Systems and Their Applications

OPEN-PROBLEM STUDY GROUPS AND DISCUSSIONS

(Monday, Tuesday, Thursday)

The idea is to use these working sessions to explore promising approaches in addressing identified challenges, as well as Open Problems.

The discussions will be focused on the 3 main groups of subtopics:

GROUP A:

- Charge and spin transport in low dimensional structures;
- Cell motion, proliferation and agglomeration;
- Modeling biological phenomena.

GROUP B:

- Mathematics for incommensurate structures;
- Computational methods for excited states;
- Modeling of non-equilibrium processes.

GROUP C:

- Electronic structures in 2D materials;
- Phonons in 2D structures;
- Piezoelectricity effects in nanostructures and devices.

Other possible subtopics in these groups may include any related issues in

- *Nanophysics and Quantum Phenomena;*
- *Nanomechanics and Nanostructure Growth;*
- *Nanobiology, Nanomedicine, and Applications;*
- *Advances in Experimental Techniques;*
- *Nanodevices and Simulation.*