Self-assembled guanosine structures for molecular electronic devices

Objectives:

Guanosine (G) and its derivatives have a high potential for self-recognition and self-assembly, as well as the recognition ability for other biologically important molecules. These properties will be explored in detail with the goal to increase the knowledge on basic principles of G-assembly, to synthesize new optimized materials, and to explore their electronic and optical properties. Novel reproducible and well ordered supramolecular structures will be designed to serve as molecular-scale architectures for new hybrid molecular electronics. The key innovation is in merging the biorecognition properties of G-based materials with their promising electronic properties, which opens up a wide range of possible nanotech and biomedical applications.

Main Achievements:

- Organisation of 1st Training School on “Fundamentals of Guanosine assembly and Quadruplex formation” in Ischia, Italy in Oct 2009 with 10 lecturers and 51 participants.

- PhD student N. Maani Hessari won prestigious Roche Research Award for best doctoral research project (Design and Prediction of Quadruplex Architectures) in molecular biosciences at Univ. of Ulster, UK in Nov 2009.

- Lively cooperation in scope of STSM: 13 missions accomplished in first 1.5 years.

- Action’s web site www.g4net.org with Action purposes, participating teams, events, positions available.