SELF-ORGANIZATION OF FUNCTIONAL SUPRAMOLECULAR DEVICES

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Supramolecular chemistry is actively exploring systems undergoing *self-organization*, i.e. systems capable of spontaneously generating well-defined functional supramolecular architectures by self-assembly from their components, on the basis of the *molecular information* stored in the covalent framework of the components and read out at the supramolecular level through specific interactional algorithms, thus behaving as *programmed chemical systems*.

The design of molecular information controlled, "programmed" and functional self-organizing systems allows the spontaneous but controlled generation of well-defined, functional molecular and supramolecular architectures of nanometric size through self-organization. It represents a means of performing programmed *engineering* and *processing* of *functional nanostructures*. It offers a very powerful complement/alternative to nanofabrication and to nanomanipulation for the development of nanoscience and nanotechnology.

This approach has been implemented in the generation of functional organic and inorganic nanostructures for molecular and supramolecular electronics, spintronics and mechanics.

References

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