

Structural and functional engineering of DNA and DNA-Hybrid nano-architectures

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Nature has demonstrated an extraordinary capacity to assemble complex nanostructures with multifunctional and high reliability skills. Among all these assemblies, Nucleic Acids are biopolymers which encode the complexity of all life forms by containing the genetic blueprint, are arguably the most powerful media known for the data storage and processing. Due to the structural properties of DNA, the conception of DNA-based architectures appears recently as a very exciting and promising field of research because it opens to the perspective of new devices and materials with applications in medicine, energy, electronics and photonics.

To address these points we are currently working to develop functionalized DNA-based architectures to prepare nanoscale assemblies for biological and technological applications. These goals will be reached by inserting selective organic molecules, metal or particles into complex DNA architectures to build and characterize new bio-hybrid assemblies having original intrinsic properties and potential applications in several fields of nanotechnologies.