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CIC biomaGUNE
CENTER FOR COOPERATIVE RESEARCH IN BIOMATERIALS

SEMINAR

Thursday, 23rd August, 12.00 pm, Seminar Room

Host: Prof. Luis M. Liz-Marzán

Integrating supramolecular chemistry with engineering principles for the design of new functional biomaterials

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There is great interest to develop new ways to engineer materials with properties that resemble those of biological systems such as hierarchical organization and the capacity to grow or self-heal. To this end, supramolecular chemistry offers an exciting opportunity to grow materials with nanoscale precision. However, the ability to transform molecular self-assembly into functional devices with useful applications at the macroscale remains a challenge. The talk will describe new design strategies that use supramolecular chemistry and engineering principles to develop practical materials with tuneable and advanced properties. These approaches take advantage of biological phenomena such as the interplay between protein order and disorder or the emergence of properties when multiple types of building-blocks co-assemble. We use these phenomena to build supramolecular engineering tools to rationally design materials that exhibit hierarchical organization, the capacity to grow, tuneable mechanical properties, and specific bioactivity. These materials have potential application in tissue engineering, regenerative medicine, and more biologically relevant in vitro models.