Séminaire

INSTITUT Charles SADRON
UPR 22 - CNRS - STRASBOURG

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Amphithéâtre Henri Benoît

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Abusing Peptides for Materials Science: "An entire World in-between Plastics and Proteins"

Bio-inspiration has become one of the key strategies to develop advanced functional materials.[1,2] Combining this approach with information-rich macromolecules might enable to program interactions in synthetic materials precisely,[3] which will open the functional spacefor exciting material science applications.[4] To achieve this, properties of oligopeptides were exploited.[5] By incorporating these as monodisperse segments into synthetic polymers it was shown how to program structure formation in polymers,[6-8] control inorganic-organic interfaces for material specific adhesives,[9-11] manage internal interfaces in composites accurately to achieve toughness,[12,13] host small organic drugs or lead compounds in a drug structure specific manner to improve availability or transport[14-16] or generate bioactive surfaces to control biological systems.[17] However, the most interesting is yet to come, as molecular level knowledge on the origin of the specific peptide functions allows one to rebuild those segments with synthetic precision polymers, composted of fully synthetic monomer alphabets.[18-20]

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