

PROTEINS AS INSPIRATION FOR SMART MATERIALS

Ivan Coluzza

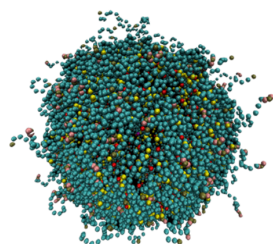
BCMaterials - Basque Center for Materials, Applications and Nanostructures Edif. Martina Casiano, Pl. 3 Parque Científico UPV/EHU Barrio Sarriena, 48940 Leioa, Bizkaia. Ikerbasque, Basque Foundation for Science, 48013 Bilbao, Spain

Martedì 5 Aprile 2022 ore 15:00 – Piattaforma TEAMS

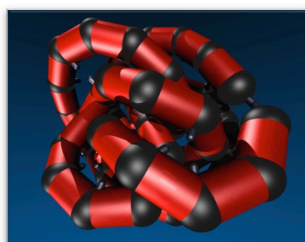
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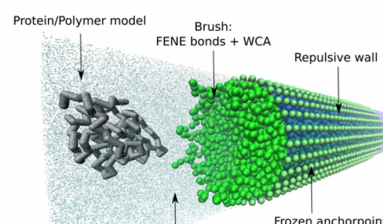
“Today the computer is just as important a tool for chemists as the test tube. Simulations are so realistic that they predict the outcome of traditional experiments” Motivation for the Nobel Prize for Chemistry 2013. In this talk I will show how using computer simulations we developed a deep understanding of proteins to bridge soft-matter and complex biological systems. We took inspiration from natural protein properties such as: charge distribution, directional interactions and chaperonin action to design and produce new devices and materials with unprecedented properties.



Nanoparticle coated with a PEG-Biomimetic brush with Antibiofouling properties.



Bionic proteins: heteropolymers with folding capabilities similar to natural proteins



Schematic representation of a refolding nano-pore used in our simulations. In green we show the polymers used to coat the inner side of the pores.

References

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