Graphene-Assisted Lipid Bilayer: A Synthetic Cell Model

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Abstract

Bio-compatibilized G/GO/RGO composite structures with embedded stearic acid on a bilayer structure model, biomimicking the cellular lipid bilayer are introduced through successive models.
The solvent accessible surface of the models (van der Waals surface) and the related MD values were imported from Molecular Dynamics through MATLAB® studies, using LiveLink™ for MATLAB®. Within the modeling, simulation and validation of the graphene-assisted-lipid bilayer were used as well: COMSOL Multiphysics®, CFD, Semiconductor and Particle Tracing modules.
Beyond a biomimetic synthetic interface for personalized bio-info-applications this model brings a real size-shape relationship between the organic and inorganic nanostructures at this scale, with the size related Physics (Quantum and Bio-Quantum) proper consideration.

References

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