Studying the statistical properties of clusters of photonic particles by communication-free parallel Monte Carlo simulations

Researchers:

- Juan Manuel Rius Casals. Universidad Politécnica de Cataluña [UPC [1]].

Idioma Indefinido

Descrição:

Proyecto asignado a través de la Red Española de Supercomputación (RES [2]).

Clusters of plasmonic nanoparticles enable a multitude of promising applications as surface-enhanced Raman spectroscopy or tailored properties in colloidal assemblies. Computer simulations play a fundamental role in understanding and predicting the electromagnetic properties of these clusters. We employ a novel communication-free parallel Monte Carlo method to efficiently calculate the optical response of clusters of nanoparticles with different configurations. Our objective is to study the properties of these systems from a statistical point of view, with special emphasis on the coupling effects that determine their collective behavior. From the results, we infer simple rules that allow to better understand them and to design particle arrays with the desired properties.

Web:

URL de origem:https://www.cenits.es/pt-pt/proyectos/studying-statistical-properties-clusters-photonic-particles-communication-free-parallel

Ligações

[1] https://www.upc.edu/es [2] https://www.res.es/