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## Most probable nanospheres in the gold nanoparticles modelling

Precious metals nanoparticles play a crucial role in the delivery of drugs to the human body. As such, various sizes of gold nanosphere particles have been modelled through classical molecular dynamics. Temperatures including 0, 100, and 300 K have been set as the initial starting temperatures in the NVT ensemble. The many-body Sutton-Chen potential was used to describe the interactions between atoms in the different nanospheres. Variations of the total energy against the  $a$ -axis was explored in which the equilibrium properties were computed. Radial distribution functions, mean square displacements, and dynamical structure factors are analysed for the most probable nanospheres to be utilised in the therapeutic human-tissue plasma applications. Temperature and Lindemann index variations are analysed to understand the melting properties of the material at nanoscale with reference to human plasma-system optimum functionality.

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