

Localized surface Plasmon based contrast agents for imaging applications

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Advancement in nano-fabrication methods and understanding about surface Plasmon have made possible to design novel nano-particles which can be used as contrast agents. Due to the surface Plasmon effects we can get higher scattering and absorption cross section from small nano-particles, which have been used for contrast mechanism. These mechanisms have been widely used for various imaging modalities [1],[2]. By varying the structure geometry or materials, it is possible to tune the optical behaviour to get desired operating response. To predict this behaviour it is necessary to do numerical simulations. Finite difference time domain (FDTD) method is one of the methods which can be used to predict the optical properties for given nano-particles. In this paper based on FDTD simulations, we have provided effect of surrounding material on scattering efficiency of silica-gold nanoparticles (40nm spherical silica core, 10nm thick coating of gold) [Fig. 1].

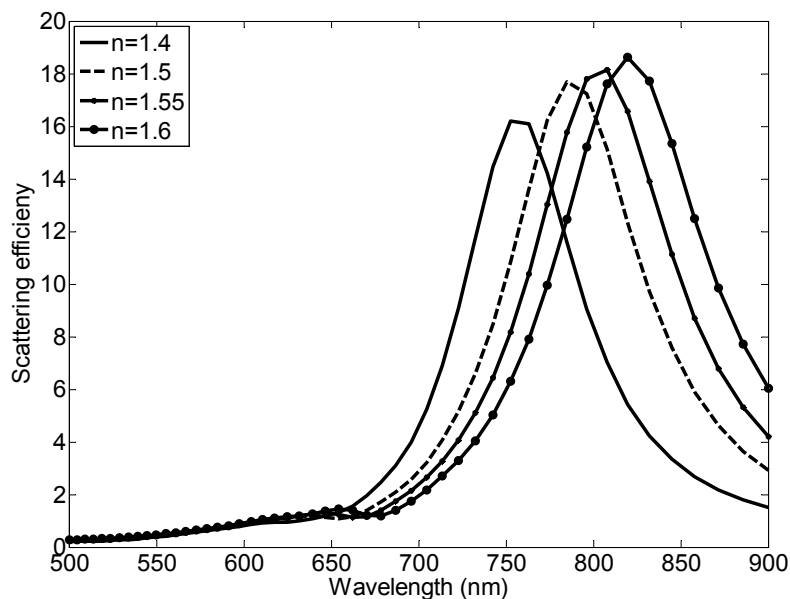


Figure 1: Effect of surrounding medium on scattering efficiency

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