



Contribution ID: 136

Type: Oral Presentation

Mode-Mixing in Nanoeggs

Thursday, 11 July 2019 10:20 (20 minutes)

We present a discussion on the mode-mixing behaviour of dipolar and quadrupolar modes in gold nanoeggs. Nanoeggs are reduced-symmetry dielectric core-metallic shell nanostructures capable of supporting hybrid plasmonic modes. We investigated theoretically, the localized surface plasmon resonances (LSPR) of nanoegg plasmons in both a non-confocal nanorice and a non-concentric nanoshell, using the Drude model, the Rayleigh approximation, the Fröhlich condition, and the Solid-harmonic addition theorem. We show that certain relationships exist between the LSPR of the nanoegg plasmons and between the LSPR of nanoegg plasmons, nanorice plasmons, and nanoshell plasmons. The LSPR of these nanoeggs possess great tunability at the single particle level and can be explored for biosensing applications.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

PhD

Primary author: Mr UGWUOKE, Luke (Department of Physics, University of Pretoria)

Co-authors: Prof. KRUGER, Tjaart (Department of Physics, University of Pretoria); Prof. MANCAL, Tomas (Faculty of Mathematics and Physics, Charles University, Prague)

Presenter: Mr UGWUOKE, Luke (Department of Physics, University of Pretoria)

Session Classification: Theoretical and Computational Physics

Track Classification: Track G - Theoretical and Computational Physics