



Oscillatory optical response of amorphous plasmonic nanoparticle arrays

Tomasz J. Antosiewicz, S. Peter Apell, Michael Zach, Igor Zoric, Christoph Langhammer

(Submitted on 8 May 2012)

The optical response of metallic nanoparticle arrays is dominated by localized surface plasmon excitations and is the sum of individual particle contributions modified by inter-particle coupling depending on specific array geometry. Here we scrutinize how experimentally measured properties of large scale (30 nm²) amorphous Au nanodisk arrays stem from single particle properties and their interaction. They give rise to a distinct oscillatory behavior of the plasmon peak position, full-width at half-maximum, and extinction efficiency which depends on the minimum particle center-to-center (CC) distance.

Subjects: **Optics (physics.optics)**

Cite as: [arXiv:1205.1658](#) [physics.optics]

(or [arXiv:1205.1658v1](#) [physics.optics] for this version)

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From: Tomasz Antosiewicz [[view email](#)]

[v1] Tue, 8 May 2012 10:38:22 GMT (1010kb)

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