

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Local density of states for nanoplasmonics¹ TIGRAN SHAH-BAZYAN, Jackson State University — We obtain the local density of states (LDOS) for any nanoplasmonic system in the frequency range dominated by a localized surface plasmon. By including the Ohmic losses in a consistent way, we show that the plasmon LDOS is proportional to the local field intensity normalized by the absorbed power. We obtain explicit formulas for the energy transfer (ET) between quantum emitters and plasmons as well as between donors and acceptors situated near a plasmonic structure. In the latter case, we find that the plasmon-assisted ET rate is proportional to the LDOS product at the donor and acceptor positions, obtain, in a general form, the plasmon ET enhancement factor, and establish the transition onset between Forster-dominated and plasmon-dominated ET regimes.

¹Supported by NSF

Tigran Shahbazyan
Jackson State University

Date submitted: 11 Nov 2016

Electronic form version 1.4