

place a
Quantum
Emitter

Second harmonic generation (SHG) due to **localization** of the field



Second harmonic generation (SHG) enhances due to **Fano resonance**



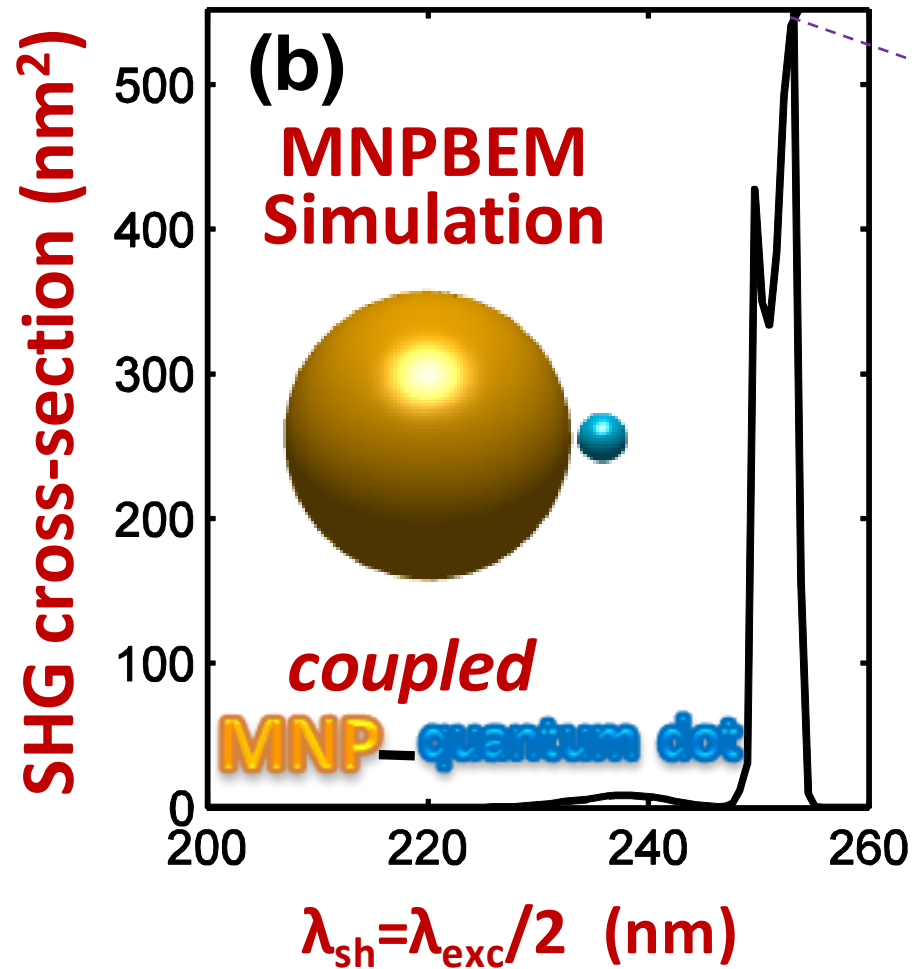
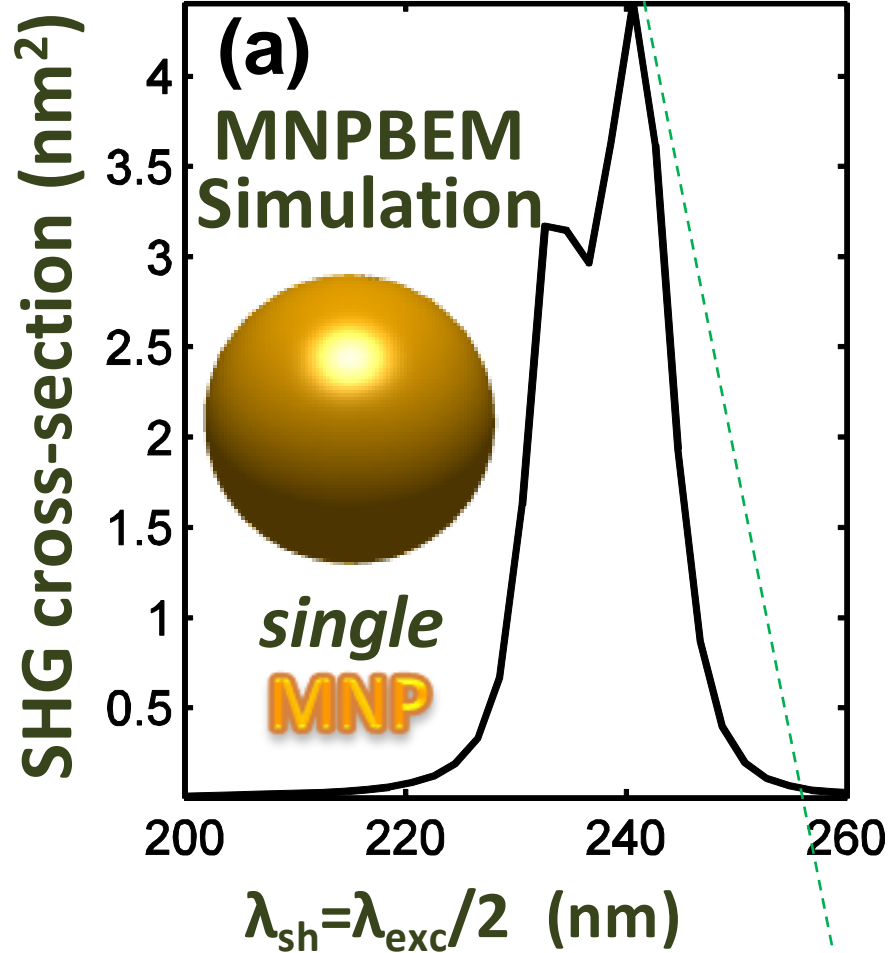
very strong SHG field

Increases conversion efficiency in Solar Cells

entanglement (squeezing) of plasmon field

squeezing of radiated photon field

3D Boundary Element Method Simulations

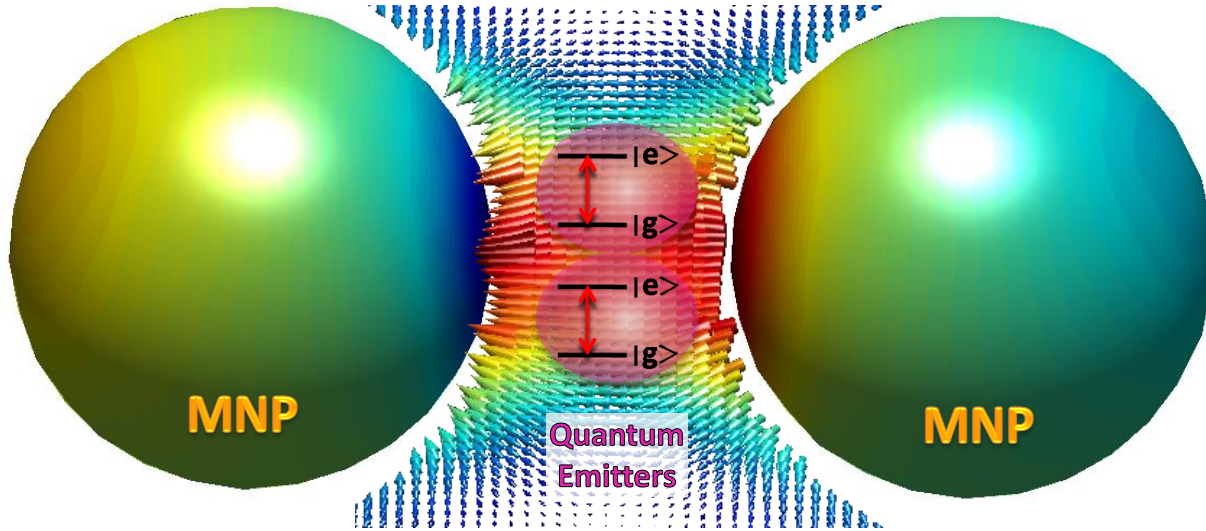


SHG is enhanced
100 times
due to
Fano resonance of QD
(500 nm²)

second harmonic generation
with a
single MNP (4 nm²)

[1] Deniz Turkpence, Gursoy B. Akguc, Alpan Bek, Mehmet Emre Tasgin, "Engineering nonlinear response of nanomaterials using Fano resonances", [arXiv:1311.0791](https://arxiv.org/abs/1311.0791)

insert 2 QDs



SHG can be enhanced
 10^7 times
due to
path interference effect

[2] Mehmet Emre Tasgin, "Divergent nonlinear optical response of three resonator system via Fano resonances", [arXiv:1404.3901](https://arxiv.org/abs/1404.3901)