

## Fingerprint of Nanocrystals in Supracrystals

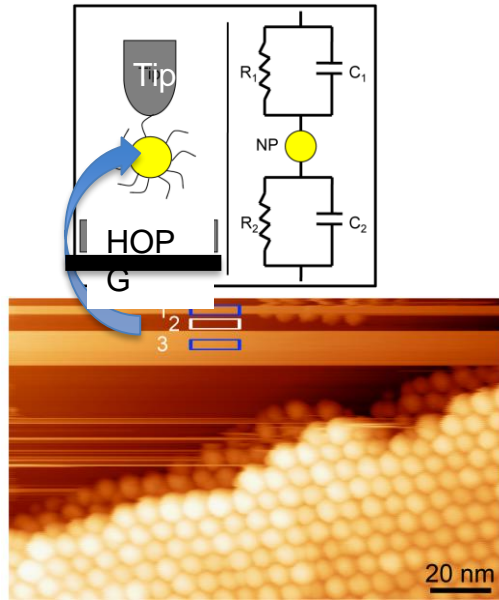
- \* Electronic transport properties

- \* Optical properties

# Fingerprint of isolated nanocrystals in thick supracrystals

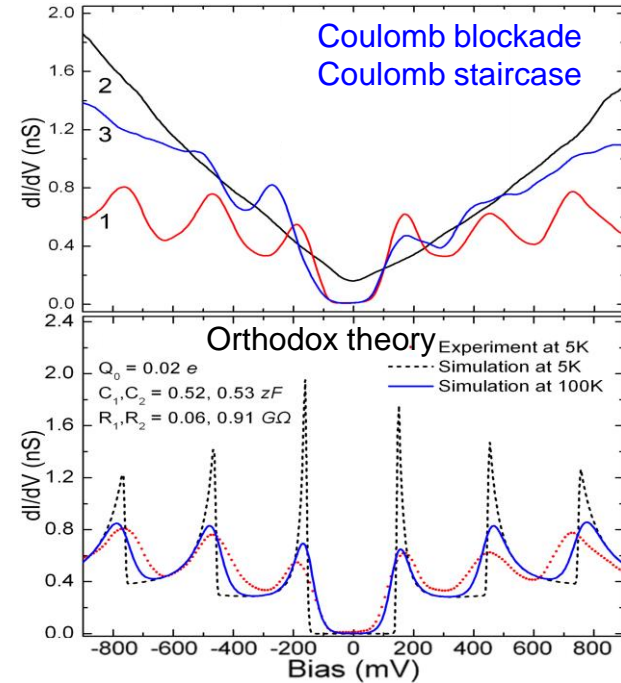
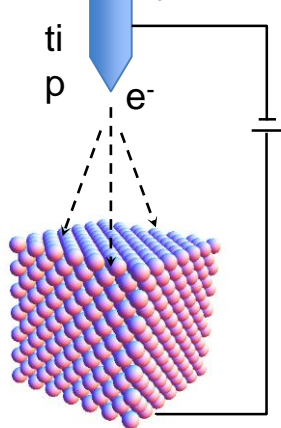
Double barrier tunneling junction

Isolated Au nanocrystals on HOPG substrate

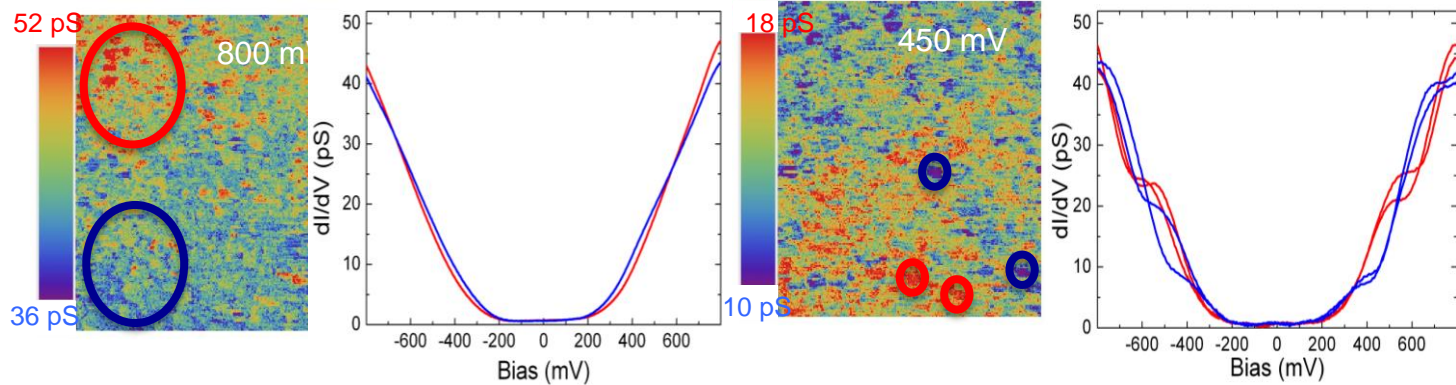


Thick supracrystals.

~600 layers



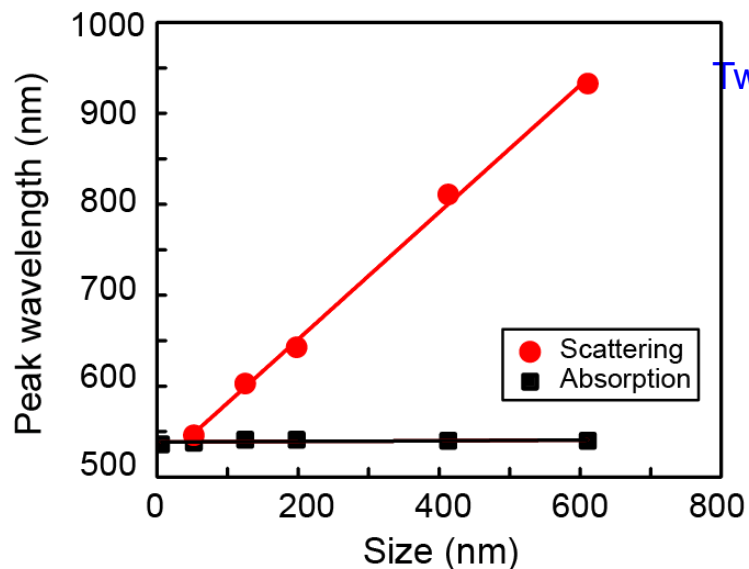
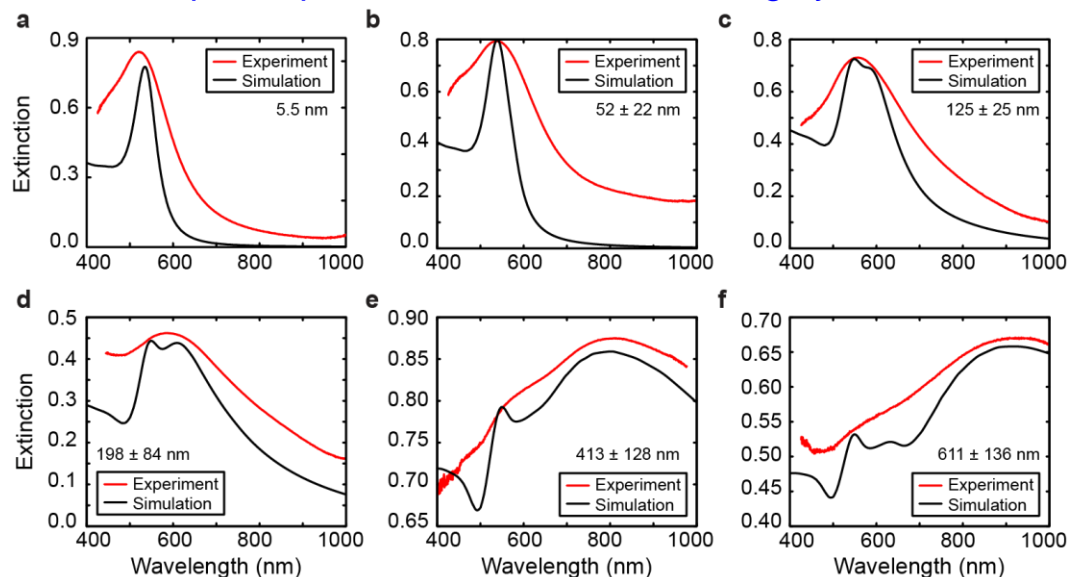
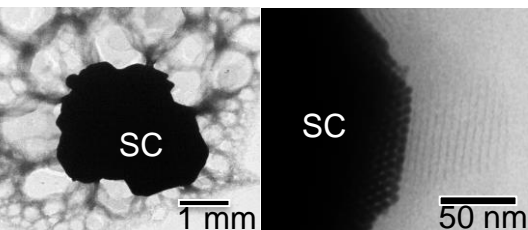
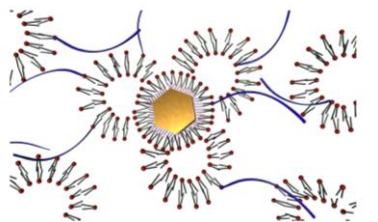
Presence of staircase-like structure



➤ Collective electronic properties with fingerprint of isolated nanocrystals

# Au « clustered » structure of hydrophobic supracrystals dispersed in aqueous solution

## Absorption spectra of assemblies differing by their sizes



Two contributions from simulations of the absorption spectra:  
\* Due the scattering processes in the assemblies  
\* Absorption spectra of isolated Au nanocrystals

Fingerprint of isolated Au nanocrystals  
in the supracrystals