Investigation of surface enhanced Raman spectroscopy (SERS) properties of polyethylene-imine (PEI)-capped gold nanoparticles

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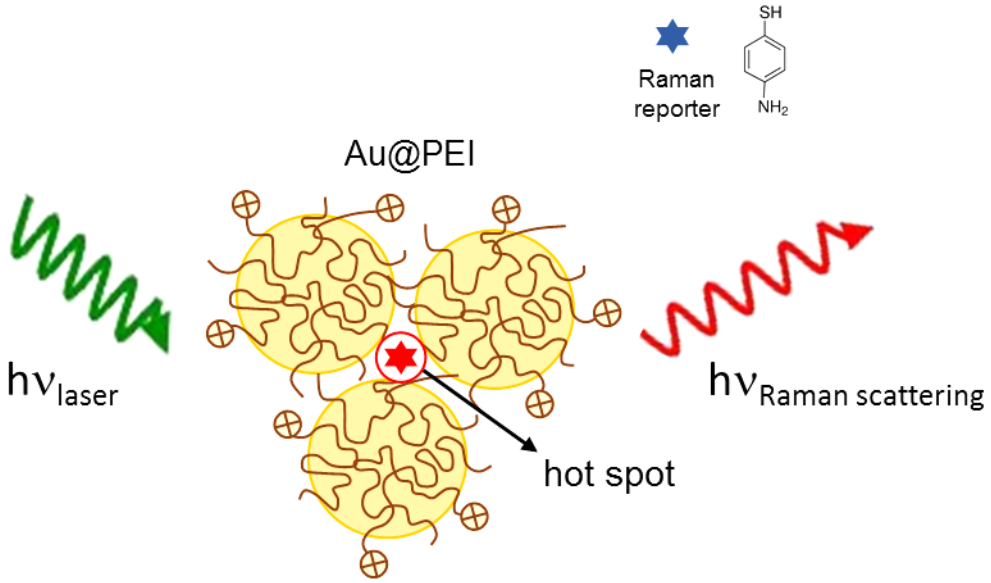

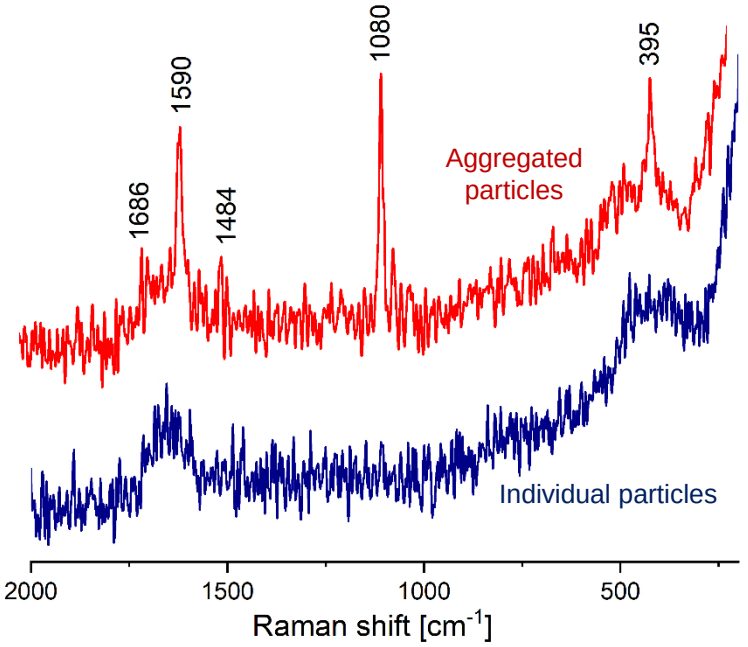

Synthesis / method / protocol: We have investigated the SERS activity of gold nanoparticles (AuNP) reduced and stabilized by polyethylene-imine (PEI) polyelectolyte via the application of 4-aminothiophenol (4-ATP) as a common SERS reporter molecule.

Scientific Goal: Theoretical and experimental training on surface enhanced Raman spectroscopy. The observations are aimed to be used for preparation of suitable silica-based SERS substrates.

Result: The surface characteristics of the Au@PEI nanoparticles affect their SERS behaviour. Enhanced bands of reporter molecule were observed in cases where spontaneous or induced aggregation of AuNPs occurred.