Supporting Information

Gold Nanoparticle Chains: Synthesis, Characterization and Modelling Using Spectroscopic Ellipsometry

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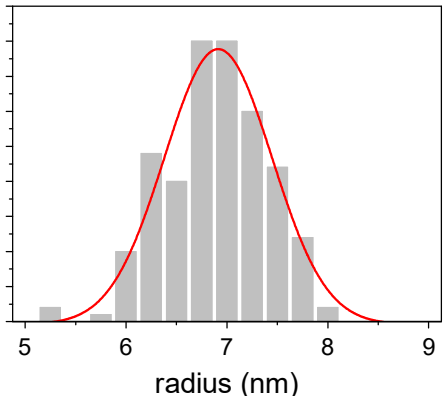

Figure S1: Size distribution of the AuNPs. Statistics done on 207 measurements.

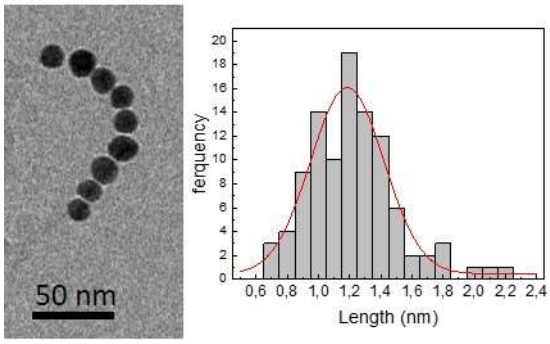

Figure S2: cryoTEM image of S4 sample and the interparticle gap g distribution.

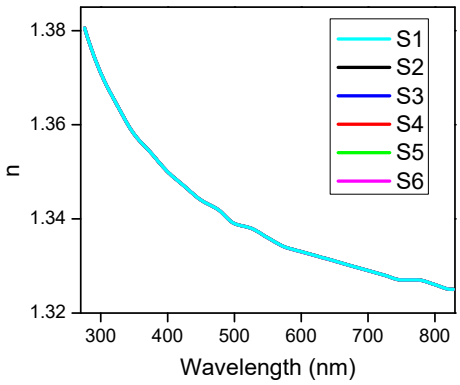

Figure S3: Effective refractive index of colloidal suspensions determined by ellipsometry.

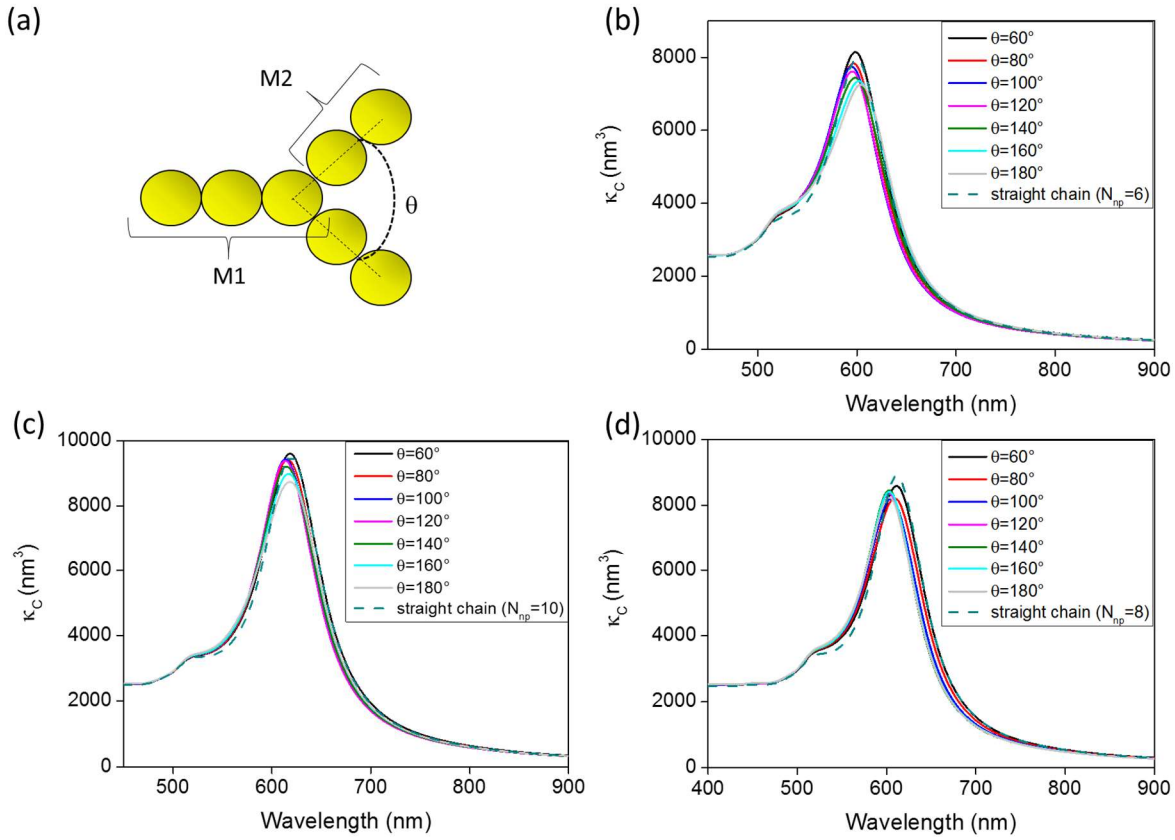

Figure S4: (a) Schematic representation of the ramified chain structures considered in the simulations. Evolution of the extinction coefficient spectra with the angle between ramifications of (b) (3,3), (c) (5,5) and (d) (5,3) ramified chains. The spectra of straight chain composed of (b) 6, (c) 10 and (d) 8 NPs are also reported. The simulations are performed by considering NPs in conductive contact asymptotic limit. The NP radius is 7 nm and water is used as matrix.

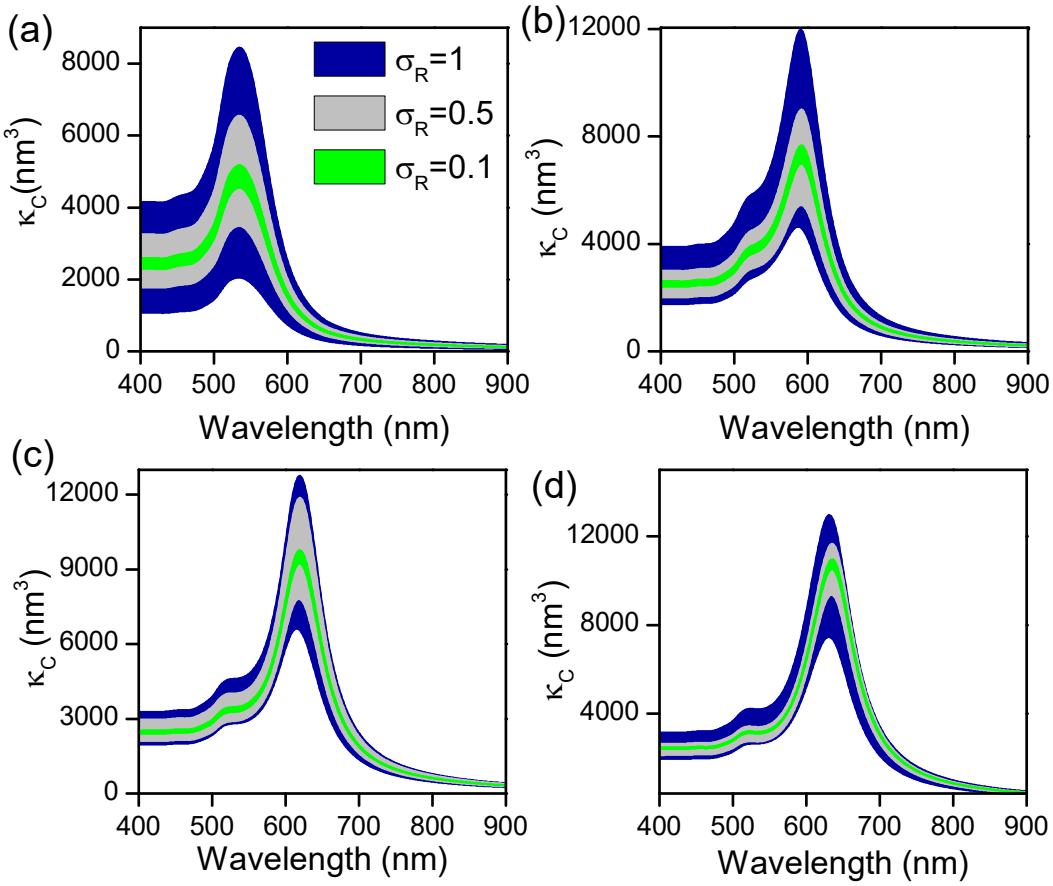

Figure S5: influence of the standard deviation σ_R of NP radius distribution on the range in which the extinction coefficient of each individual NP chain can vary. The simulation are performed by considering chains composed of (a) 2, (b) 5, (c) 10 and (d) 20 NPs in conductive contact limit. The mean radius of NP is 7 nm and water is used as matrix.

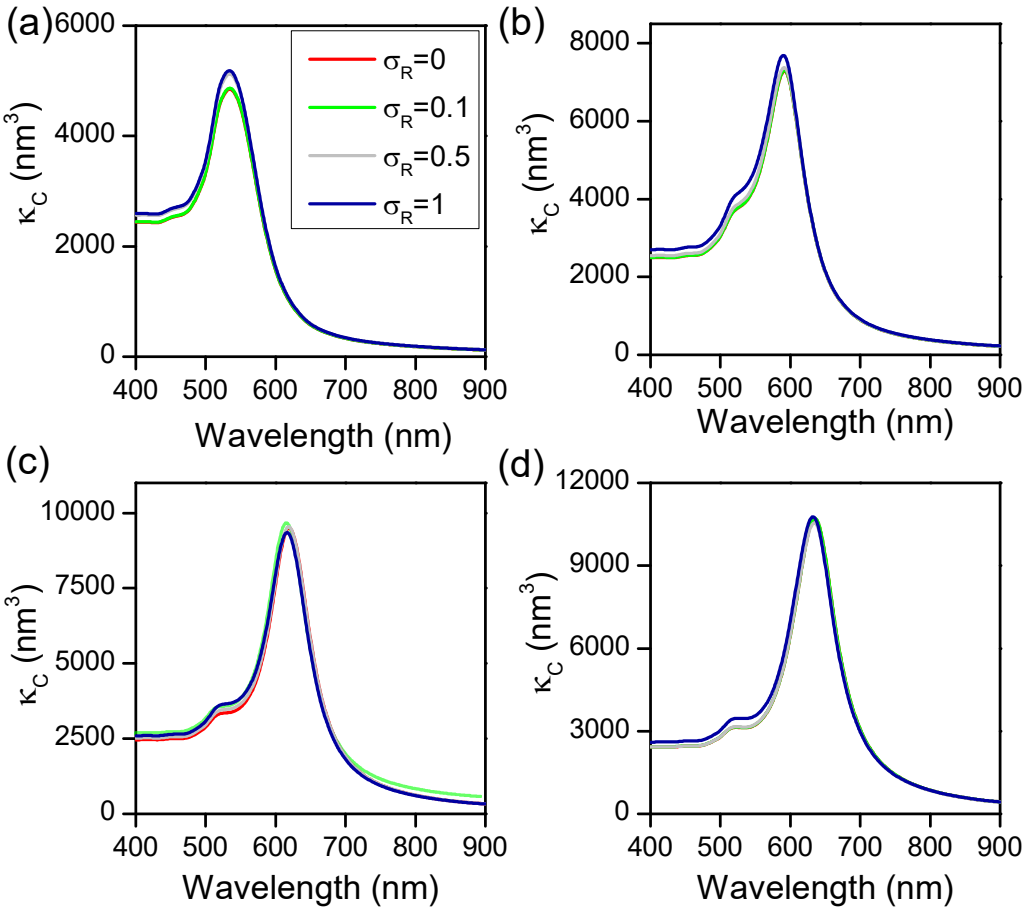

Figure S6: influence of the standard deviation σ_R of NP radius on the extinction coefficient of suspensions which contain NP chains. The simulations are performed by considering chains composed of (a) 2, (b) 5, (c) 10 and (d) 20 NPs in conductive contact limit. The mean radius of NP is 7 nm and water is used as matrix.