Supplementary Information

Mie theory and the dichroic effect for spherical gold nanoparticles: an experimental approach

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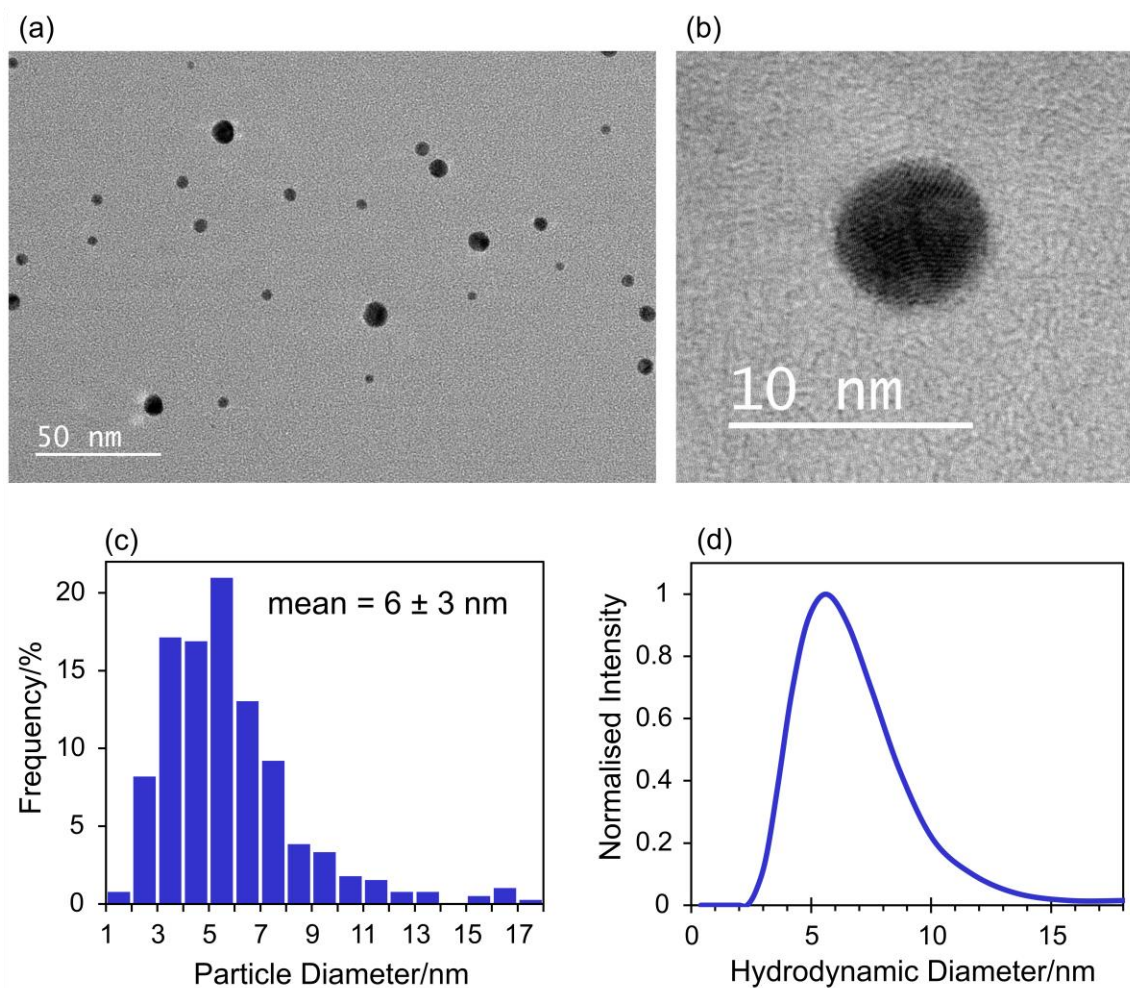

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Figure S1. Size analysis of seed nanoparticles used to synthesise spherical gold nanoparticle colloids. (a) Low and (b) high magnification TEM images. (c) Corresponding histogram composed from analysis of 391 particles. (d) Normalised dynamic light scattering hydrodynamic diameter distribution.
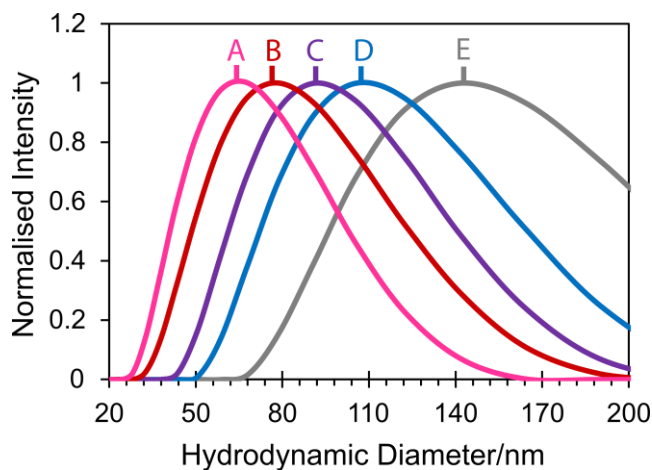
Figure S2. Normalised dynamic light scattering hydrodynamic diameter distributions of synthesised gold nanoparticle samples A to E.

	A	B	C	D	E
Particle diameter (TEM analysis)/nm	32 ± 3	53 ± 4	81 ± 6	94 ± 9	127 ± 10
Hydrodynamic diameter (DLS analysis)/nm	68	79	91	106	142

Table S1. Comparison between the particle diameters measured via transmission electron microscopy (TEM) analysis, and the hydrodynamic diameters measured via dynamic light scattering (DLS) analysis, for synthesised gold nanoparticle samples A to E.
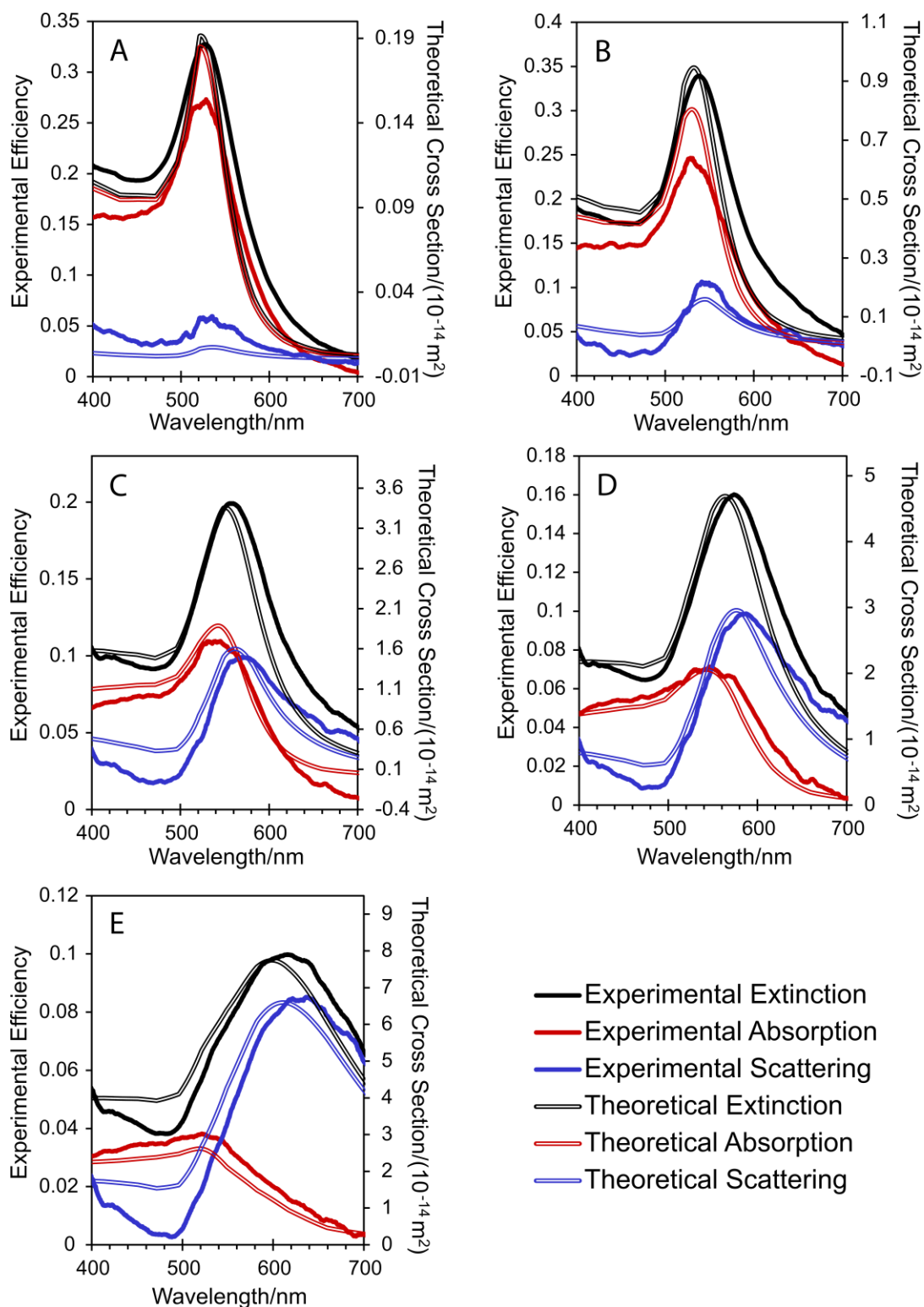
Figure S3. Comparison between experimentally measured (using CloudSpec spectroscopy, solid lines) and theoretically calculated (using Mie theory, double lines) extinction (black), absorption (red), and scattering (blue) spectra.

	A	B	C	D	E
Experimental Extinction λ_{max}/nm	528	537	558	573	613
Theoretical Extinction λ_{max}/nm	522	532	550	562	596
Experimental Scattering λ_{max}/nm	535	545	569	587	636
Theoretical Scattering λ_{max}/nm	536	545	561	575	608
Experimental Absorption λ_{max}/nm	528	529	539	547	522
Theoretical Absorption λ_{max}/nm	522	530	542	543	519

Table S2. Comparison between experimentally measured (using CloudSpec spectroscopy) and theoretically calculated (using Mie theory) extinction, scattering, and absorption λ_{max} values, obtained from the spectra in Figure S3.