

Electronic Supplementary Information

Influence of Particle Size and Dielectric Environment on Dispersion Behaviour and Surface Plasmon in Nickel Nanoparticles

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Table S1 Sample synthesis conditions

Sample	Solvent	Surfactant	Reaction time (hours)	temperature	Crystallite size (nm)	Hydrodynamic diameter (nm)
Ni1	10 ml, OA	No	2.5	210-220 °C	22.37	1120
Ni2	4 ml, OA	2 g, TPP	2.5	210-220 °C	8.50	1000
Ni3	10 ml, OA	1 ml, TOP	2.5	210-220 °C	8.33	542
Ni4	10 ml, OA	10 ml, TOP	2.5	210-220 °C	1.31	201

Table S2 Conditions for changing physical environment of particles

Sample	Additive	Additive quantity	Sample Ni4 quantity	Ethanol quantity
Ni5	PVP	4 mg	2 mg	40 ml
Ni6	CTAB	4 mg	2 mg	40 ml
Ni7	EDTA	4 mg	2 mg	40 ml

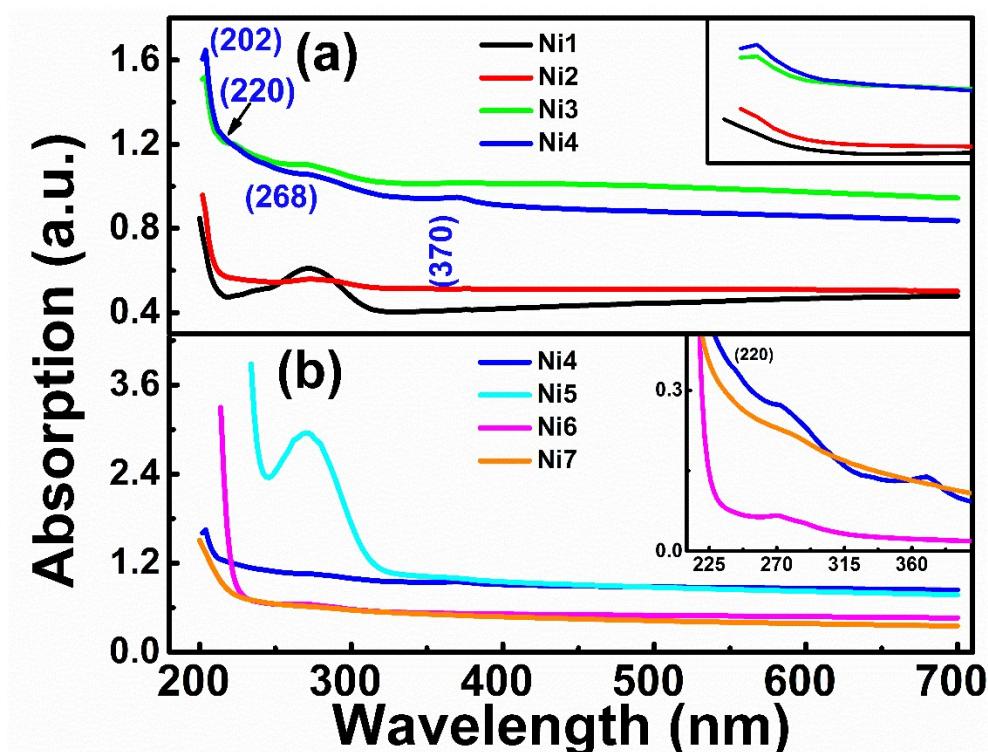


Figure S1 Absorbance spectra of (a) Ni1, Ni2, Ni3, and Ni4 of NPs and (b) in different dielectric environment.

Table S3 Hydrodynamic diameter, zeta potential, mobility, conductivity, isoelectric point and surface plasmon resonance peak of Ni1, Ni2, Ni3, Ni4, Ni5, Ni6 and Ni7 samples.

Sample	Hydrodynamic Diameter (nm)	Zeta-Potential (mV)	Mobility ($\mu\text{cm}^2/\text{Vs}$)	Conductivity (mS/cm)	Isoelectric Point	SPR Peak Position (nm)
Ni1	1120	-01.80	-05.13	0.0388	Not found	272
Ni2	1000	-14.32	-12.61	0.0321	Not found	270
Ni3	542	-16.30	-18.82	0.0299	3.39	268
Ni4	201	-35.33	-72.29	0.0046	3.57	268
Ni5	680	-10.67	-22.02	0.0073	Not found	272
Ni6	1031	-09.53	-21.19	0.0201	4.13	270
Ni7	159	-40.01	-80.19	0.0051	3.03	274