

# Controlling the properties of nanoparticles via surface coating and assembly

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W-501 seminar room, 5F WPI/MANA Bldg., Namiki site

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### Abstract

Wet-chemical syntheses are methods of choice to produce large amounts of nanoparticles with the finest control of their size and crystal structure. Organic ligands are generally used to limit particle growth and prevent their aggregation. Evidences that the composition of the ligand layer coating the nanoparticles influences their physical properties are more and more acknowledged. In a first part, we will elaborate on the influence of the ligand coating on the optical properties of ZnO nanocrystals. We will show a decrease of the visible emission of ZnO nanocrystals by ligand exchange and demonstrate the reversible photocontrol between ON-OFF emission states when the ZnO Ncs are associated to a chemical switch (diarylethen). In a second part, I will present a new and versatile strategy to form assemblies of nanoparticles based on the solvophobic effect in order to produce assemblies of superparamagnetic nanoparticles with improved relaxivity properties for MRI.

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