

## Abstract for PhD Student Presentations at the IDS FunMat Training School

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Project Title	Magnetic hybrid materials for triggered drug delivery and optical properties of intraocular lens
Text (15-20 lines)	<p>In this study, we are intrigued to develop magnetic nanocomposites for triggered drug delivery and release. Maghemite nanoparticles with a diameter of 7.5 nm and homogeneous size dispersion were prepared via a traditional coprecipitation routine. Well-defined poly (vinyl alcohol-<i>b</i>-N-vinylcaprolactam) (PVOH-<i>b</i>-PNVCL) block copolymer with different structures were synthesized via cobalt-mediated radical polymerization (CMRP). The maghemite nanoparticles were first modified with 3-aminopropyltrimethoxysilane and succinic anhydride, and then PVOH-<i>b</i>-PNVCL copolymers were grafted onto the surface-modified maghemite nanoparticles. The coated nanoparticles were characterized in term of size via a combination of dynamic light scattering (DLS) and transmission electron microscopy (TEM). A sharp temperature transition was confirmed by particles size by particles size measurement vs. temperature. Zeta potential value proved that the coated maghemite nanoparticles were well stabilized after grafting. Hyperthermia property was evaluated by superconducting quantum interface device (SQUID) and it was observed that the temperature increased by 8 °C in 10 min when exposed to an alternating magnetic field. The drug delivery properties and biological properties such as cytotoxicity assay will be investigated in the following work.</p>
Remarks	