

## NANOPARTICLES FOR BIOMEDICAL APPLICATIONS

NGUYEN T.K. Thanh

*Univeristy College London, UCL Healthcare Biomagnetic and Nanomaterials Laboratories, London, United Kingdom, EU*

### Abstract

In this presentation I will present 2 groups of nanoparticles: Magnetic nanoparticles and gold nanocrystals, they have applications in their own right and yet are intertwined for more advanced combination of magnetic and optical properties. High magnetic moment nanoparticles will have many potential applications in sensing, separation, diagnosis and treatment of diseases such as cancer, which is still a leading cause of disease worldwide. Magnetic nanoparticles offers an exciting new alternative treatment, with local heating of affected areas allows to eliminate the side effect of current radio-or chemotherapy. The most cutting edge research has recently focused on the combination of heat treatment with traditional cancer drugs. That synergistic effect with enhance the treatment efficacy of both hyperthermia and drugs. While gold nanoparticles could be used for sensing and diagnosis.

### REFERENCES:

I. Robinson, S. Zacchini, L.D. Tung, S. Maenosono, N.T.K. Thanh (2009). Synthesis and Characterization of Magnetic Nanoalloys from Bimetallic Carbonyl Clusters, *Chem. Mater.* 13: 3021.// 3. L. T. Lu, L. D. Tung, J. Long, D.G. Fernig and N.T.K. Thanh (2009) Facile and Green Synthesis of Stable, Water-soluble Magnetic CoPt Hollow Nanostructures Assisted by Multi-thiol Ligands, *Journal of Material Chemistry*, 19: 6023// 4. Blanco-Andujar, C., Ortega, D., Pankhurst, Q. A., Thanh, N. T. K.\* (2012) Elucidating the morphological and structural evolution of iron oxide nanoparticles formed by sodium carbonate in aqueous medium. *J.Mat. Chem.*, 12498-12506. //5. Blanco-Andujar, C., Southern, P., Ortega, D., Nesbitt, S.A., Pankhurst, Q.A., Thanh, N.T.K.\* (2015) High performance multi-core iron oxide nanoparticles for magnetic hyperthermia: microwave synthesis, and the role of core-to-core interactions. *Nanoscale*. 7: 1768-1775.// 6. R. M. Pallares, S. L. Kong, H. R. Tan, Thanh, N.T.K \*, Y. Lu and X. Su (2015) A plasmonic nanosensor with inverse sensitivity for circulating cell-free DNA quantification. *ChemComm*. 2015, DOI: 10.1039/C5CC05331E

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