Plasmonic and Magnetic Nanoparticles for Biomedical Application

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The development of new chemical methods for the next generation of nanoparticles with very high magnetic moment, fine tuning Au nanorods and novel hybrid and multifunctional nanostructure is presented.

Detailed mechanistic studies of their formation by sophisticated and advanced analysis of the nanostructure allows tuning of the physical properties at the nanoscale; these can subsequently be exploited for diagnosis and treatment of various diseases. The studies are conducted to provide insight for future material design approaches. It will also help to identify the critical process parameters that can be manipulated in order to obtain the suitable physical properties for the intended applications.

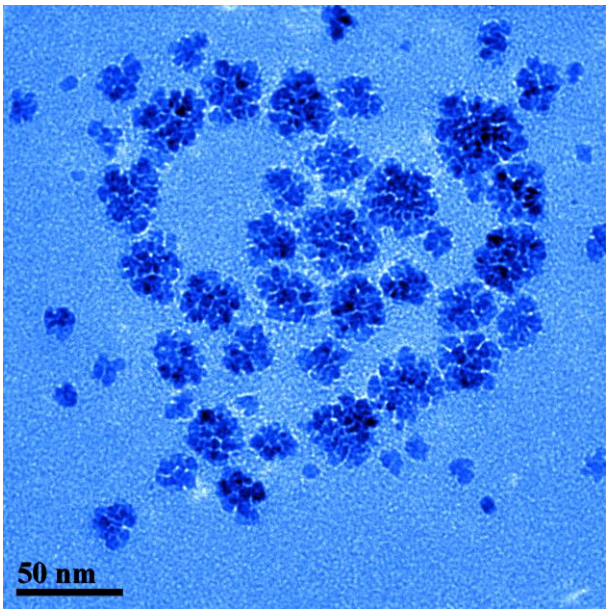

Figure 1. A TEM image of Nanoflowers at 40k times magnification with outstanding heating efficiencies (ILP of 8.4 nH m^2/kg_{Fe} or SAR = 2426 ± 76 W/g_{Fe}) measured at a frequency of 488 kHz and a field strength of 25 kA m^{-1} [1, 2]

Ref:

1. Storozhuk, L., Besenhard M. O., Mourdikoudis, S., LaGrow, A. P., Lees, M.R., Tung, L. D., Gavriilidis, A., **Thanh, N. T. K*** (2021) Simple and Fast Polyol Synthesis of Stable Iron Oxide Nanoflowers with Exceptional Heating Efficiency. *Journal of Applied Materials and Interface.* **13:** 45870−45880)
2. See more publicaiton here: https://scholar.google.com/citations?user=pK_qvc0AAAAJ