

Monday 23rd January 2012

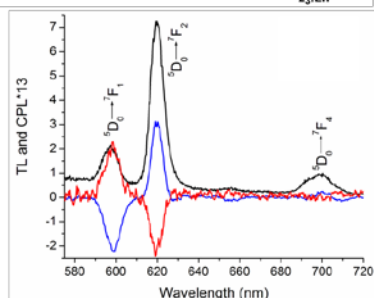
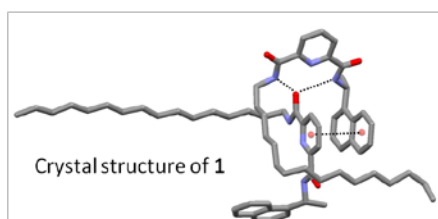
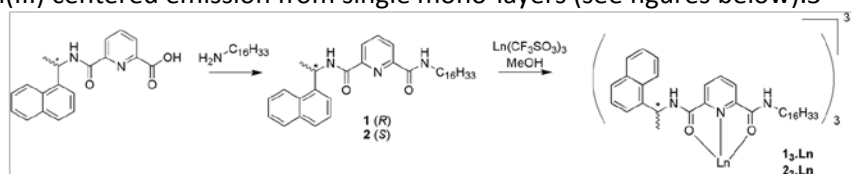
11:00 am to 12.00 pm - Room 531

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Lanthanide Directed Self Assemblies – Bundles, Helicates and Amphiphilic Complexes

The use of f-metal ions to direct the synthesis of more complex self-assembly supramolecular systems using organic ligands has become an active area of research.¹ To this end we have been involved in the preparation of self-assembled luminescent Ln(III) architectures utilising pyridyl based ligands that feature a terdentate binding pocket and a sensitising antenna group. This talk will focus on two major areas of self assembly currently under investigation within the TG supramolecular group at TCD. Firstly the preparation of chiral molecular bundles and di-metallic triple stranded helicates for potential use as sensors and probes in biological systems,² and secondly the preparation of amphiphilic Ln(III) complexes that form stable Langmuir-Blodgett films and exhibit time delayed Ln(III) centered emission from single mono-layers (see figures below).³



Total luminescence and CPL emission from monolayers of **1₃-Eu** and **2₃-Eu**

References:

- Bünzli, J.-C. G. *Acc. Chem. Res.* 2006, 39, 53. Bünzli, J.-C. G.; Piguet, C. *Chem. Soc. Rev.* 2005, 34, 1048
- Leonard, J. P.; Jensen, P.; McCabe, T.; O'Brien, J. E.; Peacock, R. D.; Kruger, P. E.; Gunnlaugsson, T. J. *Am. Chem. Soc.* 2007, 129, 10986-10987; Stomeo, F.; Lincheneau, C.; Leonard, J. P.; O'Brien, J. E.; Peacock, R. D.; McCoy, C. P.; Gunnlaugsson, T. J. *Am. Chem. Soc.* 2009, 131, 9636-9637; Comby, S.; Stomeo, F.; McCoy, C. P.; Gunnlaugsson, T. *Helv. Chim. Acta* 2009, 92, 2461-2473; Lincheneau, C.; Peacock, R. D.; Gunnlaugsson, T. *Chem. Asian. J.* 2010, 5, 500-504
- Kitchen, J. A.; Barry, D. E.; Merics, L.; Peacock, R. D.; Albrecht, M.; Gunnlaugsson, T. *Angew Chem Int. Ed.* In Press, DOI: 10.1002/anie.201106863