2011 has been a good year from the perspective of synthesis and materials, with significant publications in the area of fluorescent materials.\textsuperscript{1-3} We believe that the molecules synthesised in this project can form the basis for a new class of responsive materials, which signal changes to their environment as modulations in their fluorescent signals. If combined with suitable sensor molecules these materials have great promise as cheap and easy to use devices for detecting the presence of explosives, drugs or pathogenic microorganisms. The basic molecules we synthesised are all of relatively high molecular weight and the EPSRC service obtained many spectra which failed to give acceptable analyses using our local service.

We continued our work in the area of new porphyrin derivatives, and this resulted in an article in J. Amer. Chem. Soc., which represents almost ten year cumulative work by our own group and others in the US and Germany.\textsuperscript{4}

Finally, we continued our EPSRC funded work on nanoparticle based sensors for measuring cellular effects of reactive oxygen species, and this has resulted in one publication on the uptake and distribution of functionalised particles\textsuperscript{5}, and another which is currently in press, concerning new methods for functionalising the particles with targeting groups including sugars and peptides, as well as the fluorescent probes required to signal cellular responses\textsuperscript{6}. Once again the MS service at Swansea allowed us to obtain spectra for many of the charged and high molecular weight intermediates, which were required for publication.


