PhD Studentship

Dr. Andrew Clark

**PhD project:** Sustainable 3D-Printing using Chlorophyll. Sponsored by Photocentric Ltd.
**Supervisor:** Dr. Andrew Clark and Paul Holt (Photocentric Ltd).
**Funding availability:** Sponsored by Photocentric Ltd.
**Deadline:** 24th February 2017

**PhD project:**
To develop a new paradigm in 3D printing mediated by renewable catalysts. The ability to use light emitted from LCD screens has the potential to revolutionize 3D printing allowing for extremely large printed object (metres in size). The project will develop novel light sensitive catalysts for radical polymerization and test them in 3D printing applications at Photocentric Ltd.

**Project description:**
Photocentric has a number of patents relating to the polymerisation of compounds from light emitted from unmodified LCD screens. These polymers contain titanocene which utilises photons emitted from screens at around 460nm, creates free radicals and initiates polymerisation at intensities of light that are suitable for human viewing, ie orders of magnitude lower than traditionally used for UV photocuring and similar to those used by plants. There are a number of applications for this technology. Photocentric have commercialised the first 3D printer that creates objects from daylight active resin hardened selectively by images created from daylight emitting LCD screens.

Chlorophyll is interesting in this respect because it is effective in the same wavelength and using a similar intensity of light to that generated by LCD screens. As the most widely available photoinitiator which has created almost all of the world’s energy comparatively little research work has been done on its synthesis or its commercial applications. This research will generate numerous possible outcomes which could be potentially commercialised.
Requirements:
Applicants should have an honours degree (at least II.1 or equivalent) in chemistry. Availability is for 4 years beginning on 1st October 2017 (or earlier if required). It is open to UK and EU nationals and those of equivalent status* (UK/EU fees paid at £4,121 pa, plus annual stipend of £14,539 pa).

*Please note - ELIGIBILITY - We can only offer the stipend to UK citizens who have lived in the UK for over 3 years (e.g. as a student), or are EU nationals. Applicants from outside the EU are not eligible for this post due to restrictions on funding.

How to apply:
Please direct informal enquiries and requests for further information to Dr. Andrew Clark (a.j.clark@warwick.ac.uk). Details on the formal application procedure can be found at http://www.go.warwick.ac.uk/pgapply