

PhD project on developing molecular systems for laser technologies

Applications are invited for a Queen Mary University of London – China Scholarship Council PhD studentship starting in October 2021 to work in the laboratory of [Dr Rachel Crespo-Otero](#) and [Dr Stoichko Dimitrov](#) in the Department of Chemistry.

<div>Dimitrov lab</div> <div></div>	<div><div><div>✓ Laser spectroscopy</div><div>✓ Sustainable semiconductors</div><div>✓ Photochemistry and Photophysics</div></div></div>
<div><div><div>JACS</div><div>Journal of the American Chemical Society</div></div><div><div><div>Spectroscopic Investigation of the Effect of Microstructure and Energetic Offset on the Nature of Interfacial Charge Transfer States in Polymer: Fullerene Blends</div><div>S. D. Dimitrov,^{*,†} M. Azzouzi,[‡] J. Wu,[§] J. Yao,[‡] Y. Dong,[§] P. Shakya Tuladhar,[§] B. C. Schroeder, E. R. Bittner,[‡] I. McCulloch,^{‡,§} J. Nelson,^{*,‡} and J. R. Durrant^{†,§}</div></div></div></div>	<div><div><div>Crespo-Otero lab</div><div></div></div><div><div><div>✓ Excited state dynamics</div><div>✓ Computational photochemistry</div><div>✓ Method development and programming</div></div></div></div>

<div><div><div>JACS</div><div>Journal of the American Chemical Society</div></div><div><div><div>Article</div><div>Cite This: J. Am. Chem. Soc. 2019, 141, 4634–4663</div><div>pubs.acs.org/JACS</div></div></div></div> <div><div><div>Spectroscopic Investigation of the Effect of Microstructure and Energetic Offset on the Nature of Interfacial Charge Transfer States in Polymer: Fullerene Blends</div><div>S. D. Dimitrov,^{*,†} M. Azzouzi,[‡] J. Wu,[§] J. Yao,[‡] Y. Dong,[§] P. Shakya Tuladhar,[§] B. C. Schroeder, E. R. Bittner,[‡] I. McCulloch,^{‡,§} J. Nelson,^{*,‡} and J. R. Durrant^{†,§}</div></div></div>	<div><div><div>Journal of Materials Chemistry C</div><div>PAPER</div><div><div>Check for updates</div></div></div><div><div><div>Molecular and crystalline requirements for solid state fluorescence exploiting excited state intramolecular proton transfer†</div><div>Michael Dommett,[‡] Miguel Rivera,[‡] Matthew T. H. Smith and Rachel Crespo-Otero[‡]*</div></div></div></div>
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Context. Developing organic semiconductors with high phosphorescence quantum yields and long lifetimes is an ambition for the optoelectronic industry presenting many unknowns about the molecular structures and functional motifs required to build organic semiconductor lasers. The groups of Dr Crespo-Otero and Dimitrov are recruiting a PhD student to pursue a combined theoretical and experimental approach to identify molecular structures which can be implemented in the next generation optoelectronic technologies.

Project. The successful candidate will conduct simultaneously novel laser spectroscopy experiments and quantum chemical calculations to identify high phosphorescence yield molecular structures and motifs. They will also acquire hands-on expertise in material processing and work closely with synthetic chemistry collaborators from QMUL and Imperial College London. The student will use the laser spectroscopy facilities at QMUL, Imperial College London and the Central Laser Facility at Didcot to conduct their experimental work. The successful candidate will benefit from our membership to the [Thomas Young Centre \(TYC\)](#), the centre for the theory and simulation of materials and modelling, gathering together researchers from UCL, Imperial, KCL and QMUL. Theoretical modelling will be performed using the HPC national computer facilities and Apocrita, the HPC cluster at QMUL. The student will have the opportunity for regular travel to UK national and international conferences to present their work and will be expected to publish high impact scientific publications.

Requirement. Applications are invited from candidates with, or expecting to be awarded, an MSc degree in the areas of physical chemistry, laser spectroscopy, theoretical chemistry and physics. Applicants are required to provide evidence of their proficiency in English language skills. For further entry requirements and to apply, please follow the [link](#). Applicants are encouraged to contact Dr Crespo-Otero on r.crespo-otero@qmul.ac.uk or Dr Dimitrov on s.dimitrov@qmul.ac.uk prior to their submission by sending a CV and cover letter describing their research interests and expertise, and the names of two referees.