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Dr Stephen Goldup  
Born 30/08/1978

[s.goldup@soton.ac.uk](mailto:s.goldup@soton.ac.uk)  
[goldup.soton.ac.uk](http://goldup.soton.ac.uk)

School of Chemistry  
University of Southampton, SO17 1BJ, UK

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## CAREER AND EDUCATION

Oct 2014–	<b>Associate Professor in Supramolecular Chemistry Royal Society URF</b> University of Southampton
Oct 2009–Sept 2014	<b>Senior Lecturer and Royal Society URF</b> Queen Mary, University of London
Oct 2008–Sep 2009	<b>Leverhulme Trust Early Career Fellow</b> Queen Mary, University of London
Sep 2007–Sep 2008	<b>Fixed Term Lecturer in Organic Chemistry</b> University of Edinburgh
May 2005–Sep 2007	<b>Senior Postdoctoral Research Associate with Professor David Leigh (FRS)</b> University of Edinburgh
May 2001–May 2005	<b>PhD in Natural Product Synthesis with Professor Anthony Barrett (FRS)</b> Imperial College London
Oct 1996–Jun 2000	<b>MChem (1<sup>st</sup> class hons); Part II with Professor Sir Jack Baldwin (FRS)</b> Exeter College, University of Oxford

## CAREER SUMMARY

Dr Stephen Goldup (SMG) initially trained in Natural Product synthesis before shifting focus to apply his synthetic training to the realization of mechanically interlocked non-natural products during his postdoctoral studies. In 2008 he moved to Queen Mary University of London (QMUL) with the award of a Leverhulme Trust Early Career Fellowship and began his fully independent research career in 2009 with the award of a prestigious Royal Society University Research Fellowship. In 2014 he was appointed as Associate Professor of Organic Chemistry and Royal Society Research Fellow at the University of Southampton.

## SUMMARY OF PUBLICATION TRACK RECORD

- 12 independent publications, including: *J. Am. Chem. Soc.*, *Angew. Chem.*, *Chem. Sci.*, *Org. Lett.*, *Chem. Commun.*, and *Chem. Soc. Rev.*
- 27 publications to date in total, including *Science*.
- 1046 citations (average of 40 citations per article) with an h-index of 19.

## SUMMARY OF FUNDING TRACK RECORD

- Personal fellowships from the Leverhulme Trust (£70k, 2008) and Royal Society (£855k, 2009-2017)
- Project funding from the EPSRC (First Grant, £125k, May 2012; Bright Ideas, £311k, August 2013), Royal Society (£13.6k, April 2008; £50k, May 2011) and Leverhulme Trust (£190k, Co-Investigator).

## ESTEEM, LEADERSHIP AND PRIZES

- Royal Society of Chemistry Hickinbottom Award 2014 for "*pioneering work on the synthesis of rotaxanes*".
- Invited Feature Article for *Chem. Commun.* 2014 Emerging Investigator Issue.
- Invited oral presentation at the Transatlantic Frontiers of Chemistry (2013), an interdisciplinary meeting for emerging leaders in the chemical sciences organised by the Royal Society of Chemistry, Gesellschaft Deutscher Chemiker and the American Chemical Society.
- Organised the Royal Society of Chemistry Macrocyclic and Supramolecular Chemistry meeting 2012.
- Dave Hill Cup at Gregynog Synthesis Meeting, 2012.
- Member of the advisory board for *Chem. Soc. Rev.* (2012 onwards)
- Thieme Journal Chemistry Award 2012.

## ORGANISATION OF SCIENTIFIC MEETINGS

- Royal Society of Chemistry Macrocyclic and Supramolecular Chemistry Meeting, December 2012, QMUL. An international meeting attended by over 190 delegates from 8 countries with presentations from the UK, Japan, Canada, France, Germany and Spain. See <http://www.qmul.ac.uk/masc2012/> for details.

## ACADEMIC ACTIVITY

- Article reviewer for *Nature Chem.*, *J. Am. Chem. Soc.*, *Acc. Chem. Res.*, *Org. Lett.*, *Chem. Sci.*, *Chem. Commun.*, *Org. Biomol. Chem.*, *Dalton Trans.*, *Tetrahedron* and *Tetrahedron Lett.*
- Funding reviewer for the Agence Nationale de la Recherche (France), The Leverhulme Trust (UK), The Engineering and Physical Sciences Research Council (UK) and Royal Society of Chemistry (UK).
- Oral presentations at international conferences: ISACS14 (China, 2014), ISMSC9 (China, 2014), TFOC 2013 (Germany, 2013), ISACS10 (Japan, 2013), ICPOC21 (UK, 2012), ISMSC7 (New Zealand, 2012), MASC 2011 (UK, 2011), ESOC 2011 (Greece, 2011), ACS National Meeting (USA, 2009).
- 12 invited colloquia (international): Institut des Sciences Chimiques de Rennes UFRGS, Porto Alegre (Brazil), East China Normal University, Shanghai (China); Chinese Academy of Sciences, Beijing (China); Zhejiang University, Hangzhou (China); East China University of Science and Technology, Shanghai (China); Nanjing University (China); Freie Universität Berlin (Germany); University of Sydney (Australia); National University of Singapore; Nanyang Technical University (Singapore); University of Otago (New Zealand).
- 12 invited colloquia (UK): University of Liverpool, University of Leeds, University of Southampton, Newcastle University, University of Oxford, Edinburgh University, UCL, University of Glasgow, University of Bath, University of Birmingham, University of York, Imperial College and University of Warwick.

## SUPERVISION OF DOCTORAL STUDENTS

2009 – 2013	Kajally Jobe (3 publications)
2010 – present	Robert Bordoli (1 publication)
2010 – present	Ben Groombridge (2 manuscripts in preparation)
2011 – present	Ed Neal (1 publication, 1 manuscript in preparation)
2011 – present	Jessica Pancholi (1 publication)
2013 – present	Marzia Gali
2014 – present	Mathieu Denis

## SUPERVISION OF POSTDOCTORAL FELLOWS

2011 – 2013	Dr Joby Winn (EPSRC funded, 1 publication, 1 manuscript in preparation)
2014 – present	Dr Catherine Fletcher (EPSRC funded)
2014 – present	Dr James Lewis (EPSRC funded)

## TEACHING EXPERIENCE

- Convened and lectured courses on Carbonyl Chemistry (1<sup>st</sup> year, Edinburgh), Physical Organic Chemistry (2<sup>nd</sup> year, Edinburgh) and Chemistry of Biological Molecules (2<sup>nd</sup> year, QMUL).
- Experience of delivering practical and small group teaching.
- Implemented new teaching methods and changes to syllabus.
- Excellent course feedback from students.

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2010 – present	Member (since 2014 Fellow) of the Royal Society of Chemistry
2008 – present	Member of the American Chemical Society

## MAJOR COLLABORATIONS

- Vibrational circular dichroism in the analysis of mechanically chiral rotaxanes (Wouter Herrebout, Universiteit Antwerpen)
- Organozinc reagents for the synthesis of rotaxanes (Diogo Ludkte, Porto Alegre, Brazil).
- Novel sensors for biologically relevant metals for application *in vivo* (2 QMUL funded PhDs, Mike Watkinson, QMUL).
- Catalysts for the pseudo-living polymerisation of aryl chlorides (1 QMUL funded PhD, Igor Larrosa, Manchester).
- Photocatalytic materials for the synthesis of fuels from CO<sub>2</sub> (1 Leverhulme Trust funded PDRA, Steve Dunn, QMUL).
- Terahertz spectroscopy as an analytical tool for chemistry (Rob Donnan, QMUL).
- Spectroscopic analysis of insulated molecular wires (Jenny Clarke, Cambridge, UK; Franco Cacialli and Hugo Bronstein, UCL, UK).
- New macrocycles for application in polyynes molecular wires (Harry Anderson, Oxford, UK).
- Active template methods for the synthesis of mechanically interlocked peptides (Vincent Aucagne, Orleans, France).

## INDEPENDENT PUBLICATIONS

- [13] "Photodegradation of Rhodamine B over Ag modified ferroelectric BaTiO<sub>3</sub> under simulated solar light: pathways and mechanism" Y. Cui, S. M. Goldup, S. Dunn *RSC Adv.* **2015**, 5, 30372.
- [12] "Selective and general exhaustive cross-coupling of di-chloroarenes with a deficit of nucleophiles mediated by a Pd-NHC complex" B. J. Groombridge, S. M. Goldup,\* I. Larrosa,\* *Chem. Commun.* **2015**, 51, 3832
- [11] "Competitive Formation of Homocircuit [3]Rotaxanes in Synthetically Useful Yields in the Bipyridine-Mediated Active Template CuAAC Reaction" E. A. Neal, S. M. Goldup,\* *Chem. Sci.* **2015**, 6, 2398.
- [10] "Biologically Targeted Probes for Zn<sup>2+</sup>: A Diversity Oriented Modular "Click-S<sub>N</sub>Ar-Click" Approach" J. Pancholi, D. J. Hodson, K. Jobe, G. A. Rutter,\* S. M. Goldup\* and M. Watkinson\* *Chem. Sci.* **2014**, 5, 3528.
- [9] "An Efficient Approach to Mechanically Planar Chiral Rotaxanes" R. J. Bordoli, S. M. Goldup,\* revised manuscript submitted to *J. Am. Chem. Soc.* **2014**, 136, 4817. [Highlighted in *Chemistry World* and *Nature Nanotechnology*]
- [8] "Chemical consequences of mechanical bonding in catenanes and rotaxanes: isomerism, modification, catalysis and molecular machines for synthesis" E. A. Neal, S. M. Goldup\* *Chem. Commun.* **2014**, 50, 5128. [2014 Emerging Investigator Issue].
- [7] "Synthesis of a Rotaxane Cu<sup>I</sup> Triazolide under Aqueous Conditions" J. Winn, A. Pinczewska, S. M. Goldup\* *J. Am. Chem. Soc.* **2013**, 135, 13318.
- [6] "Crystallization of Amorphous Lactose at High Humidity Studied by Terahertz Time Domain Spectroscopy" A. I. McIntosh, B. Yang, S. M. Goldup, M. Watkinson, R. S. Donnan\* *Chem. Phys. Lett.* **2013**, 558, 104.
- [5] "Terahertz Spectroscopy: A Powerful New Tool for the Chemical Sciences?" A. I. McIntosh, B. Yang, S. M. Goldup, M. Watkinson, R. S. Donnan\* *Chem. Soc. Rev.* **2012**, 41, 2072
- [4] "Macrocyclic Size Matters: "Small" Functionalized Rotaxanes in Excellent Yield Using the CuAAC Active Template Approach" H. Lahlali, K. Jobe, M. Watkinson, S. M. Goldup\* *Angew. Chem. Int. Ed.* **2011**, 50, 4151. [Highlighted as Synfact of the Month, June 2011 (*Synfacts*, **2011**, 7, 725)]
- [3] "Two Flavors of PEPPSI-IPr: Activation and Diffusion Control in a Single NHC-Ligated Pd Catalyst?" I. Larrosa,\* C. Somoza, A. Banquy, S. M. Goldup\* *Org. Lett.* **2011**, 13, 146.
- [2] "Modular 'Click' Sensors for Zinc and their Application in vivo" K. Jobe, S. M. Goldup,\* M. Watkinson\* *Chem. Commun.* **2011**, 47, 6036. [highlighted online including *RSC Blog*]
- [1] "Unusual Mechanistic Course of Some NHC-Mediated Transesterifications" S. M. Goldup,\* T. Papalia, A. M. Z. Slawin, L. Pignataro *Org. Lett.* **2009**, 11, 1643.

## POSTDOCTORAL AND DOCTORAL PUBLICATIONS

- [15] B. Lewandowski, G. De Bo, J. W. Ward, M. Papmeyer, S. Kuschel, M. J. Aldegunde, P. M. E. Gramlich, D. Heckmann, **S. M. Goldup**, D. M. D'Souza, A. E. Fernandes, D. A. Leigh\* *Science* **2013**, 339, 189.
- [14] A. Carlone, S. M. Goldup, N. Lebrasseur, D. A. Leigh,\* A. Wilson *J. Am. Chem. Soc.* **2012**, 134, 8321.
- [13] P. E. Barran, H. L. Cole, S. M. Goldup, D. A. Leigh,\* P. R. McGonigal, M. D. Symes, J. Wu, M. Zengerle *Angew. Chem. Int. Ed.* **2011**, 50, 12280.
- [12] S. M. Goldup, D. A. Leigh,\* R. T. McBurney, P. R. McGonigal *Chem. Sci.* **2010**, 1, 383
- [11] J. D. Crowley, S. M. Goldup, N. G. Gowans, D. A. Leigh,\* V. E. Ronaldson, A. M. Z. Slawin *J. Am. Chem. Soc.* **2010**, 132, 6243.
- [10] S. M. Goldup, D. A. Leigh,\* P. M. McGonigal, V. E. Ronaldson, A. M. Z. Slawin *J. Am. Chem. Soc.* **2010**, 132, 315.
- [9] S. M. Goldup, D. A. Leigh,\* T. Long, P. R. McGonigal, M. D. Symes, J. Wu *J. Am. Chem. Soc.* **2009**, 131, 15924.
- [8] J. D. Crowley, S. M. Goldup, A.-L. Lee, D. A. Leigh,\* R. T. McBurney *Chem. Soc. Rev.* **2009**, 1530.
- [7] S. M. Goldup, D. A. Leigh,\* P. J. Lusby, R. T. McBurney, A. M. Z. Slawin *Angew. Chem. Int. Ed.* **2008**, 47, 6999.
- [6] J. Berná, S. M. Goldup, A.-L. Lee, D. A. Leigh,\* M. D. Symes, G. Teobaldi, F. Zerbeto *Angew. Chem. Int. Ed.* **2008**, 47, 4392.
- [5] S. M. Goldup, D. A. Leigh,\* P. J. Lusby, R. T. McBurney *Angew. Chem. Int. Ed.* **2008**, 47, 3381.
- [4] M. Alvarez-Pérez, S. M. Goldup, D. A. Leigh,\* A. M. Z. Slawin *J. Am. Chem. Soc.* **2008**, 130, 1836.
- [3] V. Aucagne, J. Berná, J. D. Crowley, S. M. Goldup, K. D. Hänni, D. A. Leigh,\* P. J. Lusby, V. E. Ronaldson, A. M. Z. Slawin, A. Viterisi, D. B. Walker *J. Am. Chem. Soc.* **2007**, 129, 11950.

- [2] J. Berna, J. D. Crowley, S. M. Goldup, K. D. Hänni, A.-L. Lee, D. A. Leigh\* *Angew. Chem. Int. Ed.*, **2007**, *46*, 5709.
- [1] S. M. Goldup, C. J. Pilkington, A. J. P. White, A. Burton, A. G. M. Barrett\* *J. Org. Chem.* **2006**, *71*, 6185.

## CURRENT FUNDING

- £100k**     **Leverhulme Trust Project Grant (ORPG-2733)**  
A proposal for a 24 month PDRA to develop novel molecular machines.
- £336k**     **Royal Society University Research Fellowship Renewal (October 2014–September 2017)**  
SMG's personal fellowship was renewed for a further three years from Oct 2014 to Sep 2017.
- £311k**     **EPSRC Bright Ideas Grant (EP/L016621/1, April 2014–October 2015)**  
This grant supports research towards a novel molecular machine that uses controlled molecular motion to measure the length of a growing polymer chain to produce precision co-polymers.  
20% of SMG's time is committed to the supervision of two PDRA's on this project.
- £190k**     **Leverhulme Trust Project Grant; PI, Dr Steve Dunn, QMUL (October 2012–October 2015)**  
This grant supports our collaboration with Steve Dunn (QMUL) on the use of novel photoactive surfaces to produce chemical fuels from CO<sub>2</sub>.  
5% of SMG's time is committed to the co-supervision of the PDRA on this project.
- £125k**     **EPSRC First Grant (EP/J01981X/1, July 2012–July 2014)**  
This First Grant supports a 24 month PDRA working towards novel syntheses of mechanically interlocked conducting polymers for applications in solar cells and display devices.  
10% of SMG's time is committed to this project.
- £520k**     **Royal Society University Research Fellowship (October 2009–September 2014)**  
SMG's personal fellowship supports the investigation of molecular machines that perform synthetic tasks, and his independent research more generally.

## COMPLETED FUNDING

- £50k**     **Royal Society Project Grant (Mar 2011–Feb 2013)**
- £70k**     **Leverhulme Trust Early Career Fellowship (Oct 2008–Sep 2011, resigned for URF)**
- £14k**     **Royal Society Project grant (May 2009–Apr 2010)**