



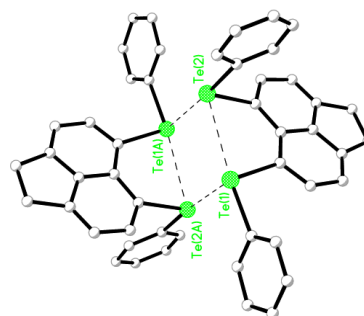
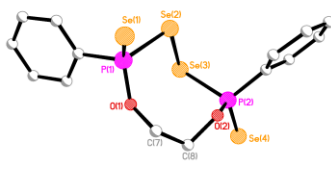
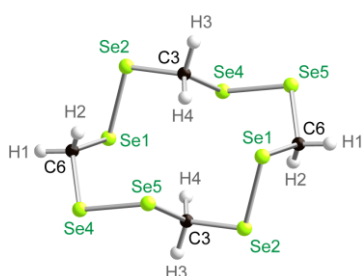
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Research Interests: synthesis, p- block chemistry, sulfur, selenium, P-S, P-Se rings and cages. S-N, Se-N, M-S-N and M-Se-N chemistry

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Our work develops a number of aspects of main group, coordination and materials chemistry. Thus, for example, metalla-sulfur-nitrogen and metalla-selenium-nitrogen compounds have been prepared and studied because of their potentially unusual electrical properties. A new class of stacking compounds was obtained and characterized.



Synthetic strategies employing liquid NH_3 have been very successful and work in this area developing the use of this solvent in the supercritical state is in progress. Simple main group rings containing group 15 and 16 elements are being prepared for a number of reasons; $\text{S}_4(\text{NR})_2$ and $(\text{NSOR})_3$ were synthesised and studied to compare inorganic and organic stereochemistry. We have described several organo-P-Se heterocycles - these illustrate the reactivity of organic multiple bonds towards multiple bonds of P-Se rings. One of the systems in this class has come to be called Woollins' Reagent by other workers in the field. The development of a useful selenium transfer reagent is now an important goal in this area. We have recently described the use of Woollins' Reagent for the synthesis of selenoamides from Aryl nitriles and for a simple olefin coupling reaction as well as for a range of ring forming reactions.

The synthesis of new S-N and M-S-N compounds continues to be of interest for fundamental studies as well as possible applications and we recently proposed a new structure for $(\text{SCN})_x$ polymer.

Systems containing naphthalene backbones are under study because of their ability to stabilize unusual oxidation states as well as interesting multimetallic molecules.

SELECTED RECENT PUBLICATIONS

http://chemistry.st-and.ac.uk/staff/jdw/group/full_pubs.html

Octaselenocyclododecane, G. Hua, J. M. Griffin, S. E. Ashbrook, A. M. Z. Slawin and J. D. Woollins, *Angew. Chem. Int. Ed. Engl.*, 2011, **50**, 4123–4126 DOI: 10.1002/anie.201006081

Formation and Reactivity of Phosphorus-Selenium Rings G. Hua and J. D. Woollins, *Angew. Chem. Int. Ed. Engl.*, 2009, **48**, 1368-1377. DOI: 10.1002/anie.200800572

Synthesis and Structure of 8-, 9- and 10-membered rings with P-Se-Se-P linkages G. Hua, Y. Li, A. M. Z. Slawin and J. D. Woollins, *Angew. Chem. Int. Ed. Engl.*, 2008, **47**, 2857-2859.

Five-Membered Arsenic-Sulfur-Nitrogen Heterocycles, $\text{RAs}(\text{S}_2\text{N}_2)$, Vi. Matuska, A. M. Z. Slawin and J. Derek Woollins, *Inorg. Chem.*, 2010, **49**, 3064–3069, DOI: 10.1021/ic1000107

Controlling $\text{Cu}^{\text{III}}\text{Cu}$ distances using halides: (8-phenylthionaphth-1-yl)diphenylphosphine copper halide dimers. F. R. Knight, A. L. Fuller, A. M. Z. Slawin and J. D. Woollins, *Dalton Trans.*, 2009, 8476 - 8478 DOI: 10.1039/B916692K9

Hypervalent adducts of chalcogen containing *peri*-substituted naphthalenes; Reactions of sulfur, selenium and tellurium with dihalogens. F. R. Knight, A. L. Fuller, M. Bühl, A. M. Z. Slawin, J. D. Woollins, *Inorg. Chem.*, 2010, **49**, 7577–7596, DOI: 10.1021/ic101086h