

NECEM WEBINAR: "Oxysulfides: structural chemistry and designing new energy materials"

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Designing new materials for energy applications is a current challenge and the possibility of using the anion sublattice to tune a material's band gap to match the solar spectrum is promising.

Oxychalcogenides, materials containing oxide anions as well as a second larger sulfide or selenide anion, show promise in terms of stability and band gap.¹ However, much research into new oxysulfides has focused on the structural chemistry of oxides.^{2,3} This talk explores the structural chemistry of oxychalcogenides.^{4,5} To date, this research has focused on designing new magnetic and electronic materials^{6,7} but this talk will illustrate new avenues to design and prepare oxysulfides for photocatalytic and photovoltaic applications.

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3. Park, H.; Alharbi, F. H.; Sanvito, S.; Tabet, N.; El-Mellouhi, F., *ChemPhysChem* 2018, 19 (6), 703-714.
4. Clarke, S. J.; Adamson, P.; Herkelrath, S. J. C.; Rutt, O. J.; Parker, D. R.; Pitcher, M. J.; Smura, C. F., *Inorganic Chemistry* 2008, 47 (19), 8473-8486.
5. McCabe, E. E.; Free, D. G.; Mendis, B. G.; Higgins, J. S.; Evans, J. S. O., *Chemistry of Materials* 2010, 22 (22), 6171-6182.
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Biography



-Undergraduate degree in Natural Sciences and then PhD at University of Birmingham, PhD carried out with Professor Colin Greaves.

-Postdoctoral positions with Prof. Tony West at University of Sheffield and with Prof. John S. O. Evans at Durham University.

-Appointed lecturer in chemistry in 2013 at University of Kent to help establish the new chemistry programmes and was promoted to senior lecturer in 2015.

-Moved to Durham in January 2021 to work in the Centre for Materials Physics as Assistant Professor and looking forward to developing collaborations within NECEM.

-Expertise in design and synthesis of inorganic materials such as oxides, oxide-fluorides, oxychalcogenides, and in their structural characterisation and physical properties.

