

52nd GREEN Open Seminar

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Venue : Seminar room#431,432, 4F, MANA Bldg., Namiki Site



Operando characterisation of Li-S battery operation

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Abstract

Polysulfide dissolution, diffusion or migration and irreversible reactions with metallic lithium are two major reasons for the capacity fading in the Li-S batteries. Use of *in operando* characterisation techniques (XAS and UV-Vis measurements) enable quantitative and qualitative detection of polysulphides in different parts of the battery and with combination of post mortem techniques and electrochemical characterisation one can understand how different changes in the battery configuration influence stability and performance. Within this talk special attention will be devoted to the development of components that can effectively suppress or completely stop polysulfide migration or even their formation. Examples of different cathode configuration, separator selection and electrolyte mixtures will be explained with detailed analytical work done by two *in operando* and two post mortem analytical techniques.