

## Arsoles as air-stable alternatives to phospholes

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The use of heavier pnictogens in conjugated materials has been a growing area of research over the last few years, with systems containing arsenic demonstrating tuneable optoelectronics and altered reactivities compared to phosphorus-containing analogues.[1] Of particular note is the increased oxidative stability of arsoles when compared to phospholes, which enables both the +3 and +5 valence states to be accessed under ambient conditions.[2]

In this presentation, we demonstrate the structural and optoelectronic differences between phosphole-containing systems and their arsenic analogues.[3,4] Our findings show that replacing P with As has a subtle effect on the optoelectronic properties in the +3 state; however, the coordination of the As atom to metals has a much smaller impact on the optical properties than is seen for P coordination. This indicates that there are considerable differences between the properties of As(V)-containing materials and those of their phosphorus-containing analogues.

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[2] J. P. Green, Y. Han, R. Kilmurray, M. A. McLachlan, T. D. Anthopoulos, M. Heeney, *Angew. Chemie Int. Ed.*, **2016**, *55*, 7148–7151.

[3] J. P. Green, S. J. Cryer, J. Marafie, A. J. P. White, M. Heeney, *Organometallics*, **2017**, *36*, 2632–2636.

[4] J. P. Green, A. K. Gupta, A. Orthaber, *Eur. J. Inorg. Chem.*, **2019**, 1539–1543.