

## Exploiting Sustainable Polar Organometallics for Arene Functionalisation and Catalysis

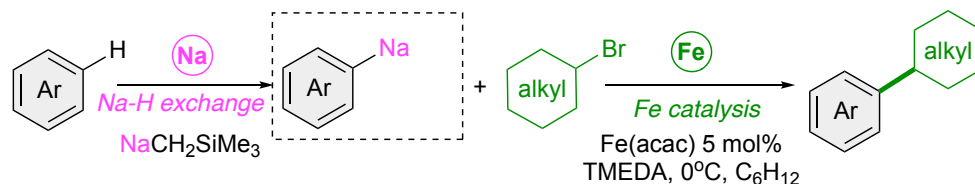
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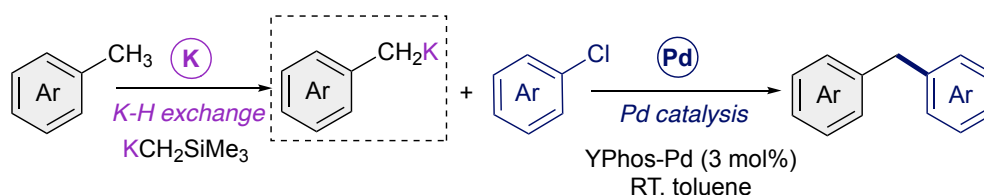
Organolithium and lithium amides such as LDA or LiTMP are commodity reagents in organic synthesis, finding widespread applications in industry and academia.<sup>[1]</sup> Their versatile reactivity and widespread applications has inevitably led to the commercialisation of both organolithium compounds as well as related commodity lithium amides. In recent years however, whilst addressing the need to promote sustainability issues in chemistry, research into the more richly abundant sodium and potassium analogues has been reinvigorated.<sup>[2]</sup>

This talk will discuss recent developments from our group on the use of sustainable organosodium and organopotassium reagents for the functionalisation of organic molecules, demonstrating that not only are they a more sustainable alternative to organolithium reagents but that they can also display superior reactivities. This includes their use on selective C-H metalation of synthetically attractive arenes, providing access to the selective functionalization of these scaffolds, including the borylation,<sup>[3]</sup> and transition-metal catalysed reactions (see Figure).<sup>[4]</sup> Their use as catalysts to promote deuteration of organic molecules,<sup>[5]</sup> as well as alkene isomerisation processes<sup>[6]</sup> will also be discussed.

a) Fe catalysed cross coupling of AlkBr with ArNa reagents



b) Pd catalysed cross coupling of ArCl with KCH<sub>2</sub>Ar reagents



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