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Phosphorus(III and V)– and arsenic(III)–nitrogen metallacycles derived from the bulky arylamido ligand NHAr (Ar = C₆H₂But^t-2,4,6); X-ray structures of ArNPN(Ar)AlMe₂ and PAr(NHAr)₂

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Abstract

In its co-ordination chemistry P(=NAr)(NHAr)(Ar = C₆H₂But^t-2,4,6)(**1a**) behaves either as (i) a source of its conjugate base yielding Ar[graphic omitted]L_n(**2**)[ML_n= AlMe₂, from (AlMe₃)₂] and (**3**)(ML_n= Li, from LiBuⁿ), or (ii) as a neutral hydrido-P^v ligand in [[graphic omitted]]₂PH}], but the arsa(III)azene (**1b**)[the As analogue of (**1a**)] undergoes facile As–NHAr bond-scission with (AlMe₃)₂; whereas (**1b**) is obtained from 2Li(NHAr)+ AsCl₃ in OEt₂ at 20 °C, prolonged reflux in PhMe of the same reagents furnishes a cyclometallated product; <P–N> in (**2**)[1.617(4)Å] is intermediate between the P=N and P–N bond lengths in (**1a**), and is significantly shorter than the 1.74(1)Å for <P–N> in PAr(NHAr)₂[obtained from PArCl₂+ 2Li(NHAr)].

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