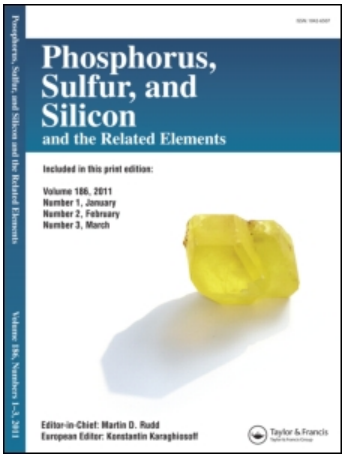

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New Stable Diphosphenes

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New Stable Diphosphenes

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Since the isolation of the first stable diphosphene by YOSHIFUJI, some other diphosphenes have been prepared and stabilized by very bulky substituents. We have recently described the synthesis, via a germylated way, of the bis [bis(trimethylsilyl)methyl]diphosphene 1, one of the least crowded stable diphosphenes:

$$RP(H)GeCl_3 \xrightarrow[-DBU.GeCl_2]{DBU} [RP(H)Cl] \xrightarrow[-DBU.HCl]{DBU} \underset{\underline{1}}{RP{=}PR} \qquad R=(Me_3Si)_2CH$$

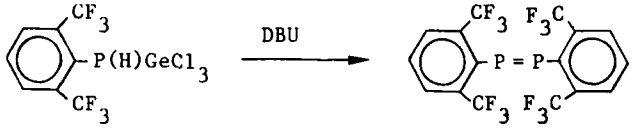
We present here two new routes to 1 involving fluorinated phosphines :

$$RPF_2 + RP(H)Li \longrightarrow \underset{F\ H}{RP\text{-}PR} \xrightarrow[-\ DBU.HF]{DBU} RP{=}PR$$

$$RPF_2 + \underset{Li}{RP\text{-}SiMe_3} \longrightarrow \underset{F\ SiMe_3}{RP\text{-}PR} \xrightarrow[-\ Me_3SiF]{} RP{=}PR$$

Reactivity of 1 towards protic reagents, dienes, selenium,... will be presented.

We have also synthesized the new diphosphenes 2 and 3 via the germylated route :



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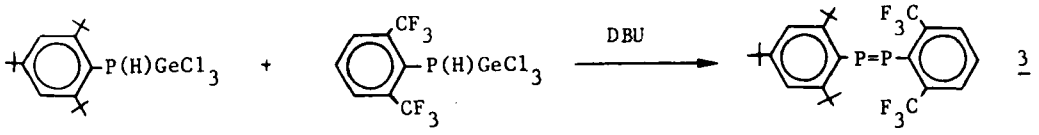

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The hexafluoro-m-xylyl substituent has been used for the first time in phosphorus chemistry ; its influence on the changes in electronic structure and reactivity of these diphosphenes has been clearly evidenced.