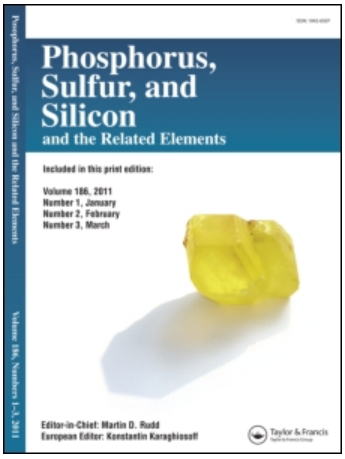

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Gas-Phase Generated Phosphinidenes as a Route to Phosphorus Heterocycles - Formation of the First 3H-Phosphindole

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GAS-PHASE GENERATED PHOSPHINIDENES AS A ROUTE TO PHOSPHORUS HETEROCYCLES – FORMATION OF THE FIRST 3H-PHOSPHINDOLE

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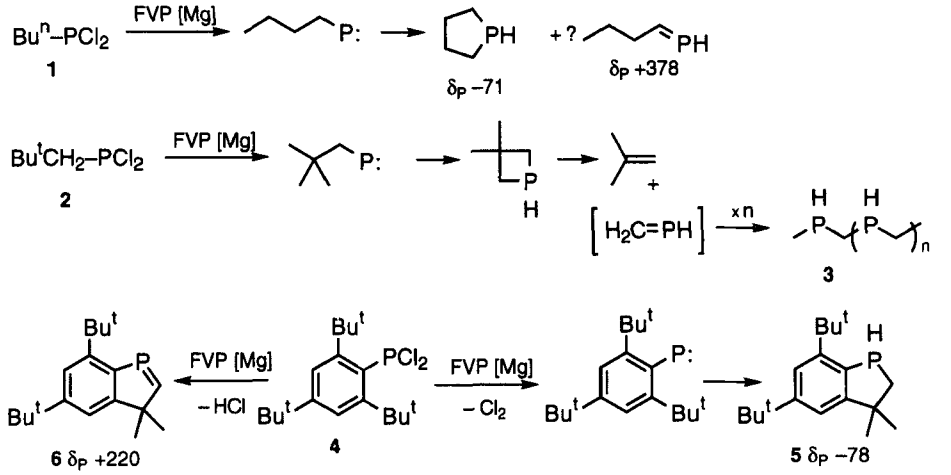
Flash vacuum pyrolysis (FVP) over freshly resublimed magnesium on glass wool is a convenient and powerful dehalogenating procedure for a wide range of organic halides. We have now applied this system to the generation of phosphinidenes from the corresponding dichlorophosphines. As shown below, the production of phospholane from **1** and the interesting pyrophoric polymer **3** from **2** are readily explained by intramolecular insertion of the phosphinidenes. Under similar conditions **4** gives not



only the expected phosphinidene insertion product, the phosphaindane **5**, but also as a minor product, the 3-*H*-phosphaindene ("phosphindole") **6** – the first example of a new heterocyclic system and the first 3-*H*-phosphole of any type.