

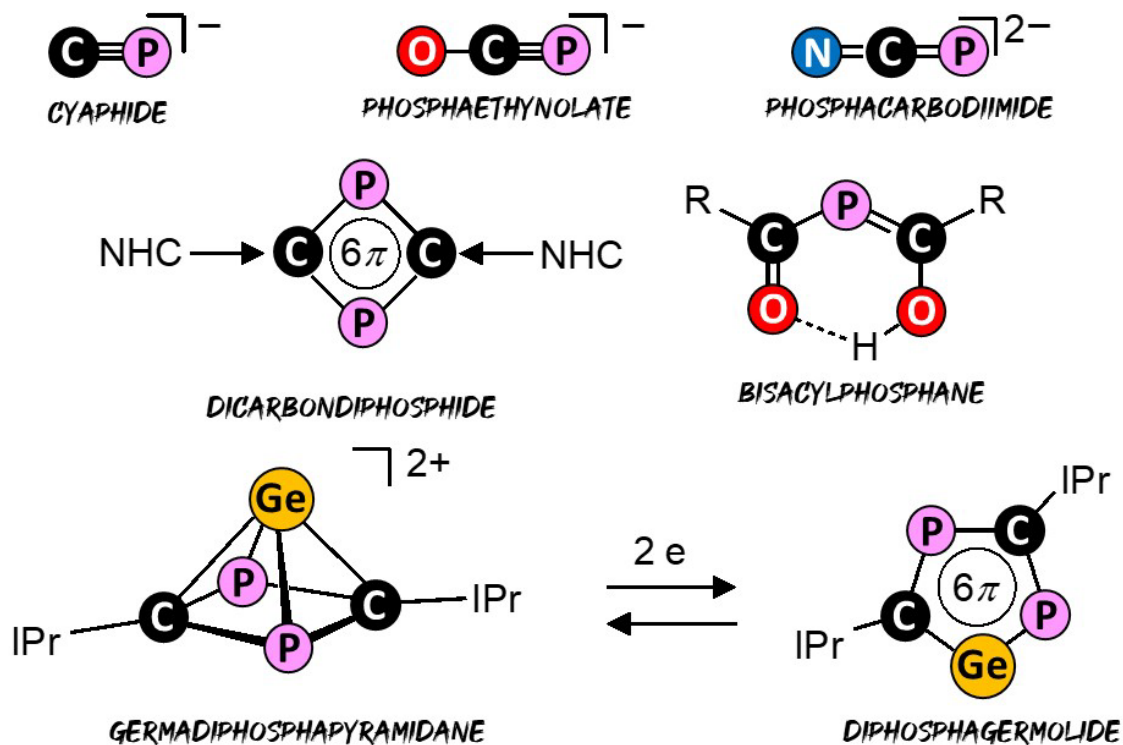
## Functional groups for organophosphorus chemistry

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From the elements C,H,N,O the realm of organic chemistry is built and their combination leads to an endless array of molecules. A set of very well established functional groups allows organic chemists to synthesize these conveniently. In main group element chemistry, a very different situation is met and the mutual substitution of “homologous” elements - like nitrogen for phosphorus - looks simple only on paper. The lecture will give an overview on our efforts to generate new functional groups such as cyaphide,<sup>1</sup> phosphoethynolate,<sup>2</sup> or phosphacarbodiimide<sup>3</sup> (as analogues of  $[\text{CN}]^-$ ,  $[\text{OCN}]^-$ , or  $[\text{CN}_2]^{2-}$ ). Not surprisingly, everything turned out differently than thought. But some of these “funny” molecules help to solve fundamental problems in chemistry, such as the mutual conversion of cluster into planar aromatic compounds, while others like bis(acyl)phosphanes assist in the solution of practical problems.



New functional groups for organophosphorus chemistry

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**KEYWORDS:** Phosphorus, Functional groups, Multiple bonds, Cluster, Photoinitiators