

NMR in Organometallic Compounds: Characterization of CH and CP Bond Activation Processes on Phosphorus Ylides.

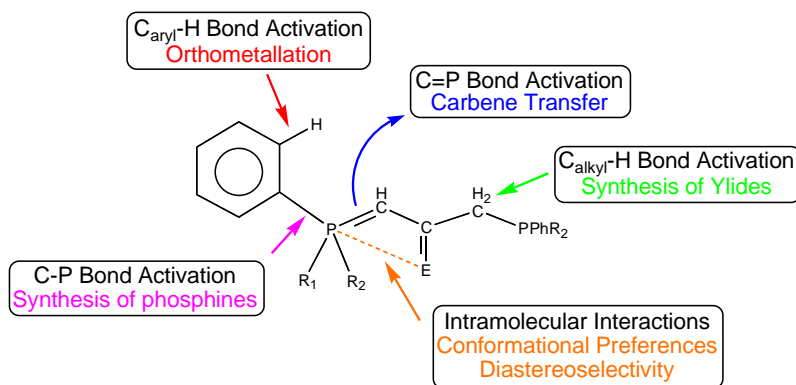
E. P. Urriolabeitia¹

¹Departamento de Compuestos Organometálicos, Instituto de Ciencia de Materiales de Aragón (CSIC – Universidad de Zaragoza), 50009 Zaragoza (Spain)

Phosphorus ylides are versatile species that behave as interesting ligands in organometallic chemistry. The reactivity displayed by palladium and platinum ylides is very diverse. This talk deals with some aspects of this rich chemistry. The bonding properties of the ylides, some of them unexpected, will be presented. In addition, different activation processes promoted by the metal will be treated: (i) the P=C_α bond activation in the synthesis of carbenes; (ii) the P-C_{aryl} bond activation in the synthesis of phosphines; (iii) the C_{aryl}-H or C_{alkyl}-H bond activation in the synthesis of orthometallated derivatives; and (iv) the C – N bond coupling in the synthesis of unusual η¹-allyl complexes.

In order to completely understand these processes we characterized all involved species by, mainly, NMR spectroscopy. However, due to the complexity of the implied compounds, the usual ¹H and ¹³C NMR spectra must be complemented with other not so usual nuclei, such as ³¹P, ¹⁹F or ¹⁹⁵Pt. The most interesting aspect of these non – routine measurements will be presented from the point of view of the *NMR applications user*.

The following figure summarizes the chemistry developed.



[1] Navarro, R.; Urriolabeitia, E. P., *J. Chem. Soc., Dalton Trans*, **1999**, 4111 – 4122 (*Dalton Perspective*).

[2] Urriolabeitia, E. P., *Dalton Trans*, **2008**, in press (B806787B, *Dalton Perspective*).

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