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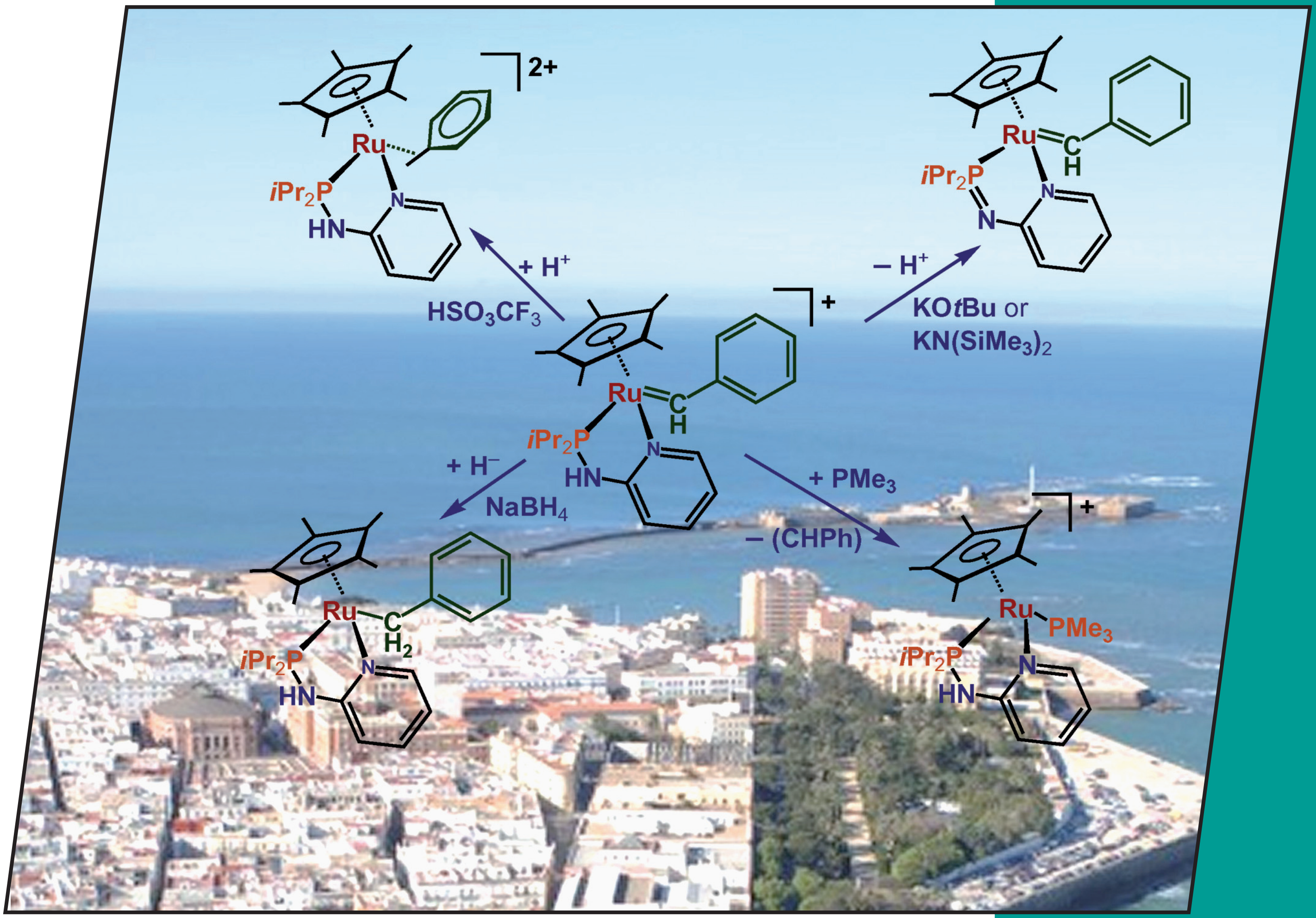

Cover Picture

Ignacio Macías-Arce, M. Carmen Puerta, and Pedro Valerga

Hybrid Ligand Ruthenium Complexes

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COVER PICTURE

The cover picture shows various reactions of the carbene complex $[Ru(\eta^5\text{-}C_5Me_5)\{\kappa^2\text{-P,N-P}i\text{Pr}_2NHC_5H_4N\}(=CHC_6H_5)]^+$ over a view of Cádiz (phoenician Gadir), one of the oldest european continuously inhabited cities. These processes illustrate its ambiphilic character. It reacts as a nucleophile with Brønsted acids, yielding a complex with an η^2-benzyl ligand. There are some previously described examples of this coordination mode for early transition metal benzylidene complexes, but this represents the first example of a structural characterization in the case of ruthenium complexes. The electrophilic behaviour of $[Ru(\eta^5\text{-}C_5Me_5)\{\kappa^2\text{-P,N-P}i\text{Pr}_2NHC_5H_4N\}\text{-}(=CHC_6H_5)]^+$ has been shown by reaction with hydride, giving rise to an η^1-benzyl complex. Normally, NMR studies allow unambiguous characterization of the η^1 coordination of a benzyl ligand. However, especially for late transition metal complexes, distinction between the usually disregarded η^2 and the generally considered η^3 mode is difficult. We propose, from this study, that the presence of an η^2-benzyl ligand in metal complexes should not be ruled out only on the basis of their NMR spectra. The carbene complex also reacts with other bases like KO*t*Bu, $KN(SiMe_3)_2$ and PMe_3. Details are discussed in the article by I. Macías-Arce, M. C. Puerta and P. Valerga on p. 1767 ff.