ETH zürich

Department of Chemistry
and Applied Bioscience

LAC L. M. Venanzi Distinguished Lecture 2024 / LAC Spring event 2024

Prof. Guy Bertrand

University of California, San Diego

2nd lecture

Wednesday May 8th – 13.00h

ETH Zürich, HIL E4

«Low coordinated main group species»

Some years ago, we reported the isolation of a phosphinidene, and demonstrated that he behaves, to some extent, as a transition metal center. Indeed, we showed that it reacts with CO to give the corresponding adduct, and that “L ligand” exchange, the prototypical reaction for transition metal complexes, also occurred.

Very recently, we discovered that phosphaalkenes behave as phosphinidene-carbene adducts and also undergo ligand exchange with other carbenes. We used this approach to prepare synthetic equivalents of diphosphorus (P_2).

In the carbon series, after working for years with carbenes, which are 6-electron species. To push the boundaries further, we wish to undress carbon atoms even more. As an illustration we will discuss our recent results dealing with a dicoordinate carbodication.

For recent papers, see:

Loh, Y. K.; Melaimi, M.; Munz, D.; Bertrand. G. J. Am. Chem. Soc. 2023, 145, 2064-2069.

Loh, Y. K.; Melaimi, M.; Gembicky, M.; Munz, D.; Bertrand, G. Nature 2023, 623, 66-70.

Loh, Y. K.; Gojiashvili, L.; Melaimi, M.; Gembicky, M.; Munz, D.; Bertrand, G. Nature Synth. 2023, in press.

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