CHEMISTRY COLLOQUIUM

Wednesday, February 1, 2012
3:15 PM, Room 111, Life Sciences

"New Reactivity of High Oxidation State Palladium"

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Carbon–heteroatom bond–forming reductive elimination from transient Pd^{IV} intermediates has been proposed as the product release step for a variety of important Pd–catalyzed transformations.[i] Stable Pd^{IV} complexes were designed and shown to undergo clean carbon–heteroatom reductive elimination directly from the metal center. Mechanistic studies were conducted to understand the factors that control carbon–oxygen and carbon–carbon reductive elimination reactions from the Pd^{IV} complexes. Additionally, a system was devised to observe the first demonstration of C–H activation at a Pd^{IV} center. This transformation was achieved by designing model complexes in which the rate of reductive elimination is slowed relative to that of the C–H activation reaction. These results provide a platform for incorporating this new reaction as a step in catalytic processes.

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[i] Lyons TW, Sanford MS (2010) Chem Rev 110:1147-1169