



PRESENTED BY:  
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UTEP

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## **Metastable Metal Complexes Supported by Guanidinate Ligands**

*In this talk, we describe the chemistry of “metastable” iron and titanium complexes supported by N-donor ligands. We have synthesized a “super bulky” guanidinate that is expected to provide kinetic access to reactive metal fragments. To this end, our efforts to synthesize and isolate complexes containing  $Fe=O/Fe\equiv N$  functionalities are discussed. Additionally, we detail our work with titanium supported by guanidinate and imidazolin-2-iminato ligands and describe its reduction chemistry. For example, we have synthesized electron-rich titanium complexes, that when reduced by two-electrons, give highly reducing compounds that exhibit unique reactivity. Using a Ti(II) platform, we observe oxidative-addition of  $C(sp^3)-H$  bonds which enables catalytic transfer hydrogenation of cyclic olefins. This reactivity and more will be presented.*