

SYNTHESIS AND REACTIVITY OF TRANSITION METAL COMPLEXES CONTAINING BULKY TIN GROUPS. Burjor Captain, Veeranna Yempally, Derek Isrow, Lei Zhu, George Fortman, Carl D. Hoff, Department of Chemistry, University of Miami, 1301 Memorial Drive, Coral Gables FL 33146.

The compound $\text{Pt}(\text{COD})(\text{SnBu}^t_3)(\text{H})$, **1** was obtained from the reaction of tri-*t*-butylstannane, Bu^t_3SnH , with $\text{Pt}(\text{COD})_2$ at room temperature. Compound **1** reacts with another equivalent of Bu^t_3SnH to afford an unsaturated diplatinum complex $[\text{Pt}(\text{SnBu}^t_3)(\mu\text{-SnBu}^t_2)(\text{H})]_2$, **2**. Replacement of the COD group in **1** with the N-Heterocyclic carbene ligand, N,N'-di-*t*-butylimidazol-2-ylidene, (IBu^t_2) , also gives an unsaturated diplatinum complex $[\text{Pt}(\text{SnBu}^t_3)(\text{IBu}^t_2)(\text{H})]_2$, **3**. Compound **3** reacts with hydrogen reversibly at room temperature. Compound **3** also reacts with CO at room temperature by breaking the Pt-Pt bond to afford $\text{Pt}(\text{SnBu}^t_3)(\text{IBu}^t_2)(\text{H})(\text{CO})$. The complex $\text{Pt}(\text{SnBu}^t_3)_2(\text{Bu}^t\text{NC})_2$, was found to add hydrogen reversibly at room temperature to yield the dihydrido complex $\text{Pt}(\text{SnBu}^t_3)_2(\text{CNBu}^t_3)_2(\text{H})_2$. A series of Ni-Sn complexes, $\text{Ni}(\text{SnBu}^t_3)_2(\text{CNBu}^t_3)_{3-n}(\text{CO})_n$ (where $n = 0, 1, 2$ and 3) have also been prepared, and these complexes react with visible light to generate radical species in solution. The synthesis and reactivity of these complexes will be discussed.