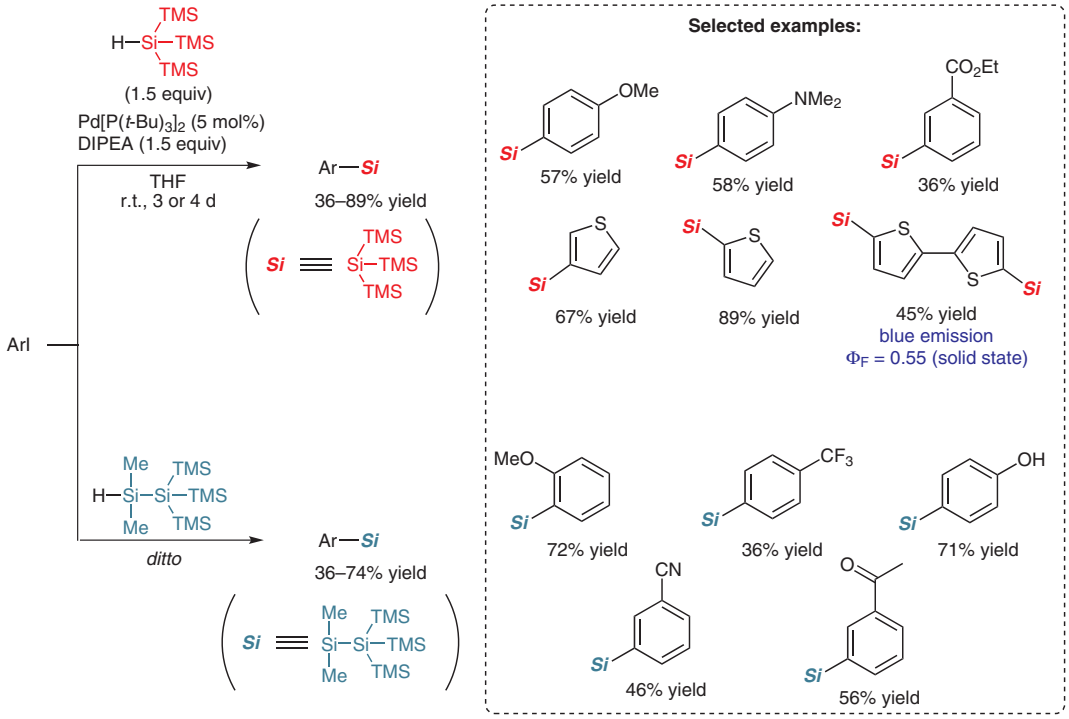
A. LESBANI, H. KONDO, J.-I. SATO, Y. YAMANOI,* H. NISHIHARA* (THE UNIVERSITY OF TOKYO, JAPAN)

Facile Synthesis of Hypersilylated Aromatic Compounds by Palladium-Mediated Arylation Reaction

Chem. Commun. **2010**, *46*, 7784-7786.

A New Method for Hypersilyl Aromatic Compounds



Significance: Incorporation of the tris(trimethylsilyl) group, known as hypersilyl group, into π-conjugated compounds is a promising strategy for the development of unique optoelectronic materials. This super-sterically demanding functionality can not only suppress π–π stacking, which often leads to emission quenching, but also offers effective σ–π conjugation with adjacent π-electron systems. Nevertheless, synthetic methods for hypersilylated compounds have been quite limited, which often accompany cleavage of weak Si–Si σ-bonds. Herein, the authors communicate the palladium-catalyzed cross-coupling of tris(trimethyl)silane with aryl iodides to provide hypersilylated aromatic compounds, leaving the Si–Si bonds intact. Furthermore, they show that other hydrooligosilanes are applicable to this reaction.

Comment: It is noteworthy that 5,5′-bis(hypersilyl)bithiophene shows highly efficient solid-state blue fluorescence (Φ_F = 0.55), probably due to suppression of intermolecular stacking in the solid state by bulky hypersilyl groups. A significant red shift of the UV absorption maximum of the silyl-substituted bithiophene (λ_{max} = 351 nm) compared to bithiophene (λ_{max} = 304 nm) was also observed, indicating the existence of effective σ–π conjugation.

SYNFACTS Contributors: Timothy M. Swager, Youhei Takeda
Synfacts 2011, 1, 0034-0034 Published online: 21.12.2010
DOI: 10.1055/s-0030-1259153; **Reg-No.:** S15810SF