C.-H. TSAI, D. N. CHIRDON, A. B. MAURER, S. BERNHARD, K. J. T. NOONAN\* (CARNEGIE MELLON UNIVERSITY, PITTSBURGH, USA)

Synthesis of Thiophene 1,1-Dioxides and Tuning Their Optoelectronic Properties *Org. Lett.* **2013**, *15*, 5230–5233.

## Synthesis of 2,5-Diarylated Thiophene 1,1-Dioxides

## method A:

 $Ar = Ph, 4-MeOC_6H_4, 4-F_3CC_6H_4, 4-NCC_6H_4, 4-O_2NC_6H_4, 2-thienyl, 2-furyl, 5-thiazolyl$ 

## Selected examples:

**Significance:** The authors disclose the palladium-catalyzed diarylation of distannylated thiophene 1,1-dioxide (electron-poor aryl coupling partners) and diiodo thiophene 1,1-dioxide (electron-rich aryl coupling partners) by Stille cross-coupling reactions to synthesize various 2,5-bis(aryl)thiophene 1,1-dioxides in moderate yields. Furthermore, the electrochemical and photophysical properties of these diarylated thiophene dioxides were investigated using cyclic voltammetry and fluorescence spectroscopy.

 SYNFACTS Contributors: Paul Knochel, Nadja M. Barl

 Synfacts 2014, 10(1), 0075
 Published online: 13.12.2013

 DOI: 10.1055/s-0033-1340375; Reg-No.: P16513SF

**Comment:** The corresponding distannylated thiophene 1,1-dioxides are obtained by treatment of 2,5-bis(trimethylsilyl)thiophene 1,1-dioxide with tetrabutylammonium fluoride (TBAF) and bis(tributyltin) oxide. A wide range of these diarylated thiophene dioxides show significant quantum yields, and their appropriate reduction and oxidation potentials may easily be tuned by the use of electron-donating and -withdrawing aryl groups.

Category

Metal-Mediated Synthesis

**Key words** 

tin

palladium

thiophene dioxides