

1998

Palladium-Catalyzed Carboxylation of Allyl Stannanes and Carboxylative Coupling of Allyl Stannanes and Allyl Halides [Abstract]

Russell J. Franks

Stephen F Austin State University, rjfranks@sfasu.edu

Follow this and additional works at: http://scholarworks.sfasu.edu/chemistry_facultypubs

 Part of the [Chemistry Commons](#)

Tell us how this article helped you.

Recommended Citation

Franks, Russell J., "Palladium-Catalyzed Carboxylation of Allyl Stannanes and Carboxylative Coupling of Allyl Stannanes and Allyl Halides [Abstract]" (1998). *Faculty Publications*. Paper 31.
http://scholarworks.sfasu.edu/chemistry_facultypubs/31

This Conference Proceeding is brought to you for free and open access by the Chemistry and Biochemistry at SFA ScholarWorks. It has been accepted for inclusion in Faculty Publications by an authorized administrator of SFA ScholarWorks. For more information, please contact cdsscholarworks@sfasu.edu.

Palladium-Catalyzed Carboxylation of Allyl Stannanes and Carboxylative Coupling of Allyl Stannanes and Allyl Halides [Abstract]

The reaction of allyl stannanes with CO_2 to form stannyl carboxylates (esters) is catalyzed by $\text{Pd}(\text{PR}_3)_4$ complexes. Thus, $\text{R}_3\text{SnCH}_2\text{CH}=\text{CH}_2$ [$\text{R}=\text{Me}$ and Ph] are converted to $\text{R}_3\text{SnO}_2\text{CCH}_2\text{CH}=\text{CH}_2$ and $\text{R}_3\text{SnO}_2\text{CCH}=\text{CHCH}_3$ under 33 atm of CO_2 (70°C , THF) in moderate to excellent yield in the presence of 8 mol% $\text{Pd}(\text{PPh}_3)_4$; polycarboxylation of diallyldibutyltin and tetraallyltin also is effected, producing the respective di- and tetracarboxylates, $\text{Bu}_2\text{Sn}(\text{O}_2\text{CCH}_2\text{CH}=\text{CH}_2)_2$ and $\text{Sn}(\text{O}_2\text{CCH}_2\text{CH}=\text{CH}_2)_4$, along with the corresponding isomeric crotyl derivatives. In the presence of allyl halides, allyl stannanes and CO_2 undergo carboxylative coupling to produce allyl esters. Under these conditions other Sn-C (Sn-alkyl, -aryl, -vinyl) and Si-C (Si-allyl, -alkyl, -aryl, -vinyl) bonds are inert to carboxylation and carboxylative coupling with allyl halides. A tentative mechanism is proposed to account for this catalytic carboxylation of a main group metal-carbon bond.