B. SHAO, A. L. BAGDASARIAN, S. POPOV, H. M. NELSON\* (UNIVERSITY OF CALIFORNIA, LOS ANGELES, USA)
Arylation of Hydrocarbons Enabled by Organosilicon Reagents and Weakly Coordinating Anions *Science* 2017, 355, 1403–1407.

## Silylium Ion Catalyzed C–H Arylation of Hydrocarbons



**Significance:** The Nelson group reports a silylium ion catalyzed arylation of  $C(sp^2)$ –H and  $C(sp^3)$ –H bonds. By employing 2–5 mol% of precatalyst **A** in the presence of a trialkylsilane initiator, various aliphatic and aromatic hydrocarbons were arylated with variously functionalized trimethylsilyl fluorobenzenes.

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**Comment:** Previously, catalytic reactions involving highly reactive phenyl cation equivalents were limited to intramolecular transformations. The authors describe the formation of a  $\beta$ -siliconstabilized phenyl cation (equivalent) **II**, which is proposed to subsequently undergo intermolecular insertion into the C–H bond of a hydrocarbon present in large excess. Desilylation of the resulting Wheland intermediate furnishes the product and regenerates the catalytically active species **I**.

## Category

Organo- and Biocatalysis

## Key words

arylation

hydrocarbons

phenyl cation

silylium ion

