Palladium Cross-Couplings with a Silicon-Based Transfer Agent

**Significance:** The authors present a reusable, bench-stable, silicon-based transfer agent for effective room-temperature palladium-catalyzed cross-couplings of aryl chlorides with aryl lithium reagents.

**Comment:** DFT calculations outline the importance of the CF₃ groups of the transfer agent and support a σ-bond-metathesis mechanism during transmetallation.

**Selected examples:**
- 99% yield
- 82% yield
- 78% yield
- 52% yield
- 87% yield
- 81% yield

**Proposed catalytic cycle:**

1. transfer agent (1.4 equiv)
   THF, –78 °C to r.t., 2 h
2. catalyst (1–5 mol%)
   XPhos (1–5 mol%),
   THF, r.t., 2–24 h

**ArCl (1.0 equiv)**

$\text{X} = \text{N, CH}$