Sonogashira Coupling with Bimetallic Pd–Au Nanoparticles on Carbon

**Significance:** Bimetallic palladium–gold nanoparticles on carbon (Pd–Au/C) were prepared by treatment of a mixture of Pd(OAc)$_2$, KAuCl$_4$, and charcoal in methanol with H$_2$ (eq. 1). Pd–Au/C catalyzed the Sonogashira coupling of aryl iodides with terminal alkynes under copper-free conditions to give the corresponding diaryl alkynes in up to 95% yield (18 examples, eq. 2).

**Comment:** The Pd–Au/C nanoparticles were characterized by TEM, XRD, STEM-EDX, XPS and CV analyses. Though the catalytic activity of fresh Pd–Au/C was similar to that of fresh Pd/C, Pd–Au/C showed high stability during the recycling experiments (eq. 3). TEM analysis showed that the morphology of the recovered Pd–Au/C was unchanged after the third run.