Direct Borylation of Arenes Catalyzed by \(\gamma\)-Fe\(_2\)O\(_3\)

**Significance:** \(\gamma\)-Fe\(_2\)O\(_3\) magnetic nanoparticles (particle size 58 nm) catalyzed the borylation of arenes with bis(pinacolato)diborane in the presence of di-\text{-}\text{ tert}\text{-}butyl peroxide and potassium carbonate under air to give the corresponding borylated products in up to 75% yield (10 examples, eq. 1). A sequential reaction via \(\gamma\)-Fe\(_2\)O\(_3\)-catalyzed borylation of benzene and Suzuki–Miyaura coupling with iodoarenes gave the corresponding biaryls in up to 56% yield (4 examples, eq. 2).

**Comment:** The catalytic activity of \(\gamma\)-Fe\(_2\)O\(_3\) was superior to that of the other iron catalysts, such as FeCl\(_3\), FeBr\(_3\), FeF\(_3\), Fe(acac)\(_3\), Fe\(_2\)(SO\(_4\))\(_3\), and Fe\(_2\)O\(_3\). In the borylation of toluene and anisole, the ortho-borylated products were obtained as major regioisomers.