Asymmetric Conjugate Addition of ArB(OH)$_2$ to Enones with Chiral Rh-POF

**Significance:** A rhodium complex supported on a chiral porous organic framework (chiral POF-Rh) was prepared by the Suzuki–Miyaura coupling of chiral bistriflate 1 and 2, followed by the complexation with [Rh(C$_2$H$_4$)$_2$Cl]$_2$ (eq 1). Chiral POF-Rh catalyzed the asymmetric conjugate addition of arylboronic acids to enones to give the corresponding 1,4-addition products in up to 93% yield with up to 93% ee (15 examples, eq. 2).

**Comment:** Chiral POF and chiral POF-Rh were characterized by NMR, BET, TEM, SEM, TGA, PXRD, and ICP analyses. In the reaction of phenylboronic acid with 2-cyclohexenone, chiral POF was recovered by centrifugation and reused by treatment with [Rh(C$_2$H$_4$)$_2$Cl]$_2$ without significant loss of activity and enantioselectivity (5$^{th}$ recycling run: 87% yield, 84% ee).

**Typical results:**

- 93% yield, 91% ee
- 92% yield, 81% ee
- 89% yield, 81% ee
- 92% yield, 93% ee
- 88% yield, 82% ee
- 90% yield, 71% ee
- 57% yield, 48% ee
- 55% yield, 90% ee
- 73% yield, 74% ee
- 78% yield, 40% ee

**Key words**
- porous organic framework
- conjugate addition
- rhodium
- enones
- arylboronic acids

**Category**
- Polymer-Supported Synthesis