Pyrene-Tagged Dendritic Catalysts Noncovalently Grafted onto Magnetic Co/C Nanoparticles: An Efficient and Recyclable System for Drug Synthesis

**Angew. Chem. Int. Ed. 2013, 52, 3626–3629.**

**Suzuki Coupling Using Co/C MNPs-Immobilized Dendritic Phosphine–Pd**

**Significance:** Pyrene-tagged mono- and penta-phosphine–palladium complexes were immobilized on graphene layers of magnetic Co/C nanoparticles through $\pi-\pi$ interactions. The resulting catalysts 1 and 2 were applied to the Suzuki–Miyaura coupling of aryl bromides 1 and boronic acids 2 to afford the corresponding biaryls 3 in 70–98% yield (seven examples). These catalysts were separated from the reaction mixture by magnetic decantation.

**Comment:** Catalyst 2 was reused ten times without significant loss of catalytic activity (felbinac: 3f, 1st use: 100% GC yield; 11th use: 100% GC yield). ICP-MS analysis for the first cycle showed that about 6% of the introduced palladium leached out into the crude mixture (111 ppm palladium). After the extraction with CH$_2$Cl$_2$, the contamination of palladium became less than 5 ppm, and no traces of cobalt were detected.