Significance: Zwitterionic imidazolium amidinate ligand-supported platinum nanoparticle catalysts 2a–c [Pt/ICy\((Ar)\text{NCN}\)] were prepared as shown in eq. 1. The hydrogenation of olefins, carbonyl or nitro compounds was carried out with platinum nanoparticles 2a–c to give the corresponding reduced products (eqs. 2–5).

Comment: The platinum nanoparticle catalyst 2b was characterized by means of 15N and 13C MAS NMR, TEM, HR-TEM, WAXS, TGA and elemental analyses. The authors have previously reported the synthesis of Ru-ICy\((p\text{-Tol})\text{NCN}\) and its application in the hydrogenation of styrene (L. M. Martínez-Prieto et al. Chem. Commun. 2015, 51, 4647).