One-Pot Two-Step Catalytic Asymmetric Michael Addition/Hydrogenation

**Significance:** A one-pot two-step asymmetric Michael addition–transfer hydrogenation co-catalyzed by an immobilized organocatalyst [SA@HSMSN (Cat. A)] and a Ru complex catalyst ([Ru]@HSMSN/HP (Cat. B)) was developed. The reaction of enone 1 and nitro sulfone 2 in the presence of Cat. A, Cat. B, and HCOONa gave the corresponding alcohols 4 in excellent chemical yields and with high diastereoselectivity (96–99% ee).

**Comment:** Squaramide and MesRuArDPEN were immobilized in hollow-shell-mesostructured silica nanoparticles without or with a hydrophilic polymer coating to form Cat. A and Cat. B, respectively. Cat. A promoted the Michael addition at ~35 °C, and Cat. B catalyzed the transfer hydrogenation at 35 °C, to realize temperature-dependent control of the sequential dual-catalytic process.

**SYNFACTS Contributors:** Yasuhiro Uozumi, Ryoko Niimi

**SYNFACTS** 01122020, 16(12), 1453 Published online: 17.11.2020 DOI: 10.1055/s-0040-1706557; Reg-No.: Y10720SF

© 2020, Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany