Electronic Supplementary Information

Growing a Hydrophilic Nanoporous Shell on a Hydrophobic Catalyst Interface for Aqueous Reactions with High Reaction Efficiency and in situ Catalyst Recycling

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Definition of catalytic efficiency. To quantitatively compare the efficiency of different structured catalysts, we defined the catalytic efficiency parameter CE as the number of moles of converted substrate per mole of metal per hour (mol mol^{-1} h^{-1}).

$$CE = \frac{converted\ substrate(mol)}{Pd(mol) \times h}$$

The conversion was calculated through H_2 consumption monitored by the H_2 pressure decrease and verified by GC analysis. Conversions of less than 20% were used to calculate the efficiency of the catalysts.

Table S1 Results of hydrogenation of methyl acrylate over Pd-supported catalysts

catalyst	Pd/SiO_2	$Pd/SF@NS_{0.15}$	$Pd/SF@NS_{0.3}$	$Pd/SF@NS_{0.6}$	$Pd/SF@NS_{0.9}$
Conversion (%)	61	94	98	90	84

[a]2 mmol of substrate; 0.1 mol% Pd; 6 mL of water; 25 °C, o.15 MPa H_2 pressure, 1 h; determined by GC.

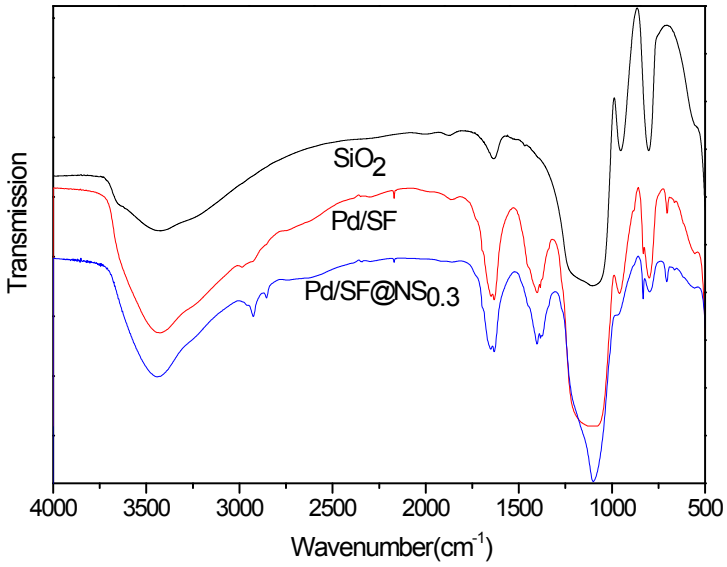

Figure S1. FT-IR spectra of SiO_2, Pd/SF and $Pd/SF@NS_{0.3}$.