Supporting Information

Heterogeneous Parahydrogen Induced-polarization on Rh-containing Silicalite-1 Zeolite: Effect of Catalyst Structure on Signal Enhancement

Weiyu Wang,[a] Qiming Sun,[b] Qiang Wang,[a] Shenhui Li,[a] Jun Xu,*[a] and Feng Deng*[a]

[a] *National Centre for Magnetic Resonance in Wuhan, State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Wuhan Institute of Physics and Mathematics, Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, Wuhan 430071, China*

University of Chinese Academy of Sciences, Beijing 100049, China

[b] *Innovation Center for Chemical Sciences, College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, China*

* xujun@wipm.ac.cn, dengf@wipm.ac.cn

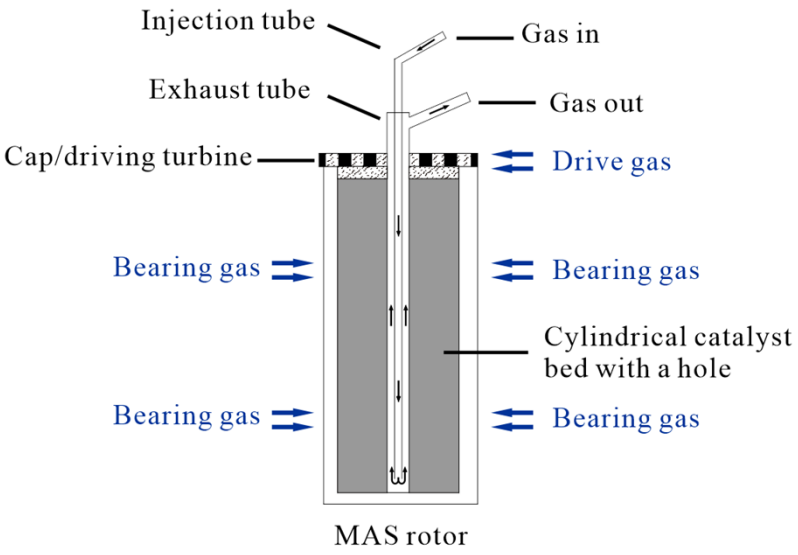

Figure S1. Schematic of the MAS rotor used as the reactor for the PASADENA solid-state NMR experiment.

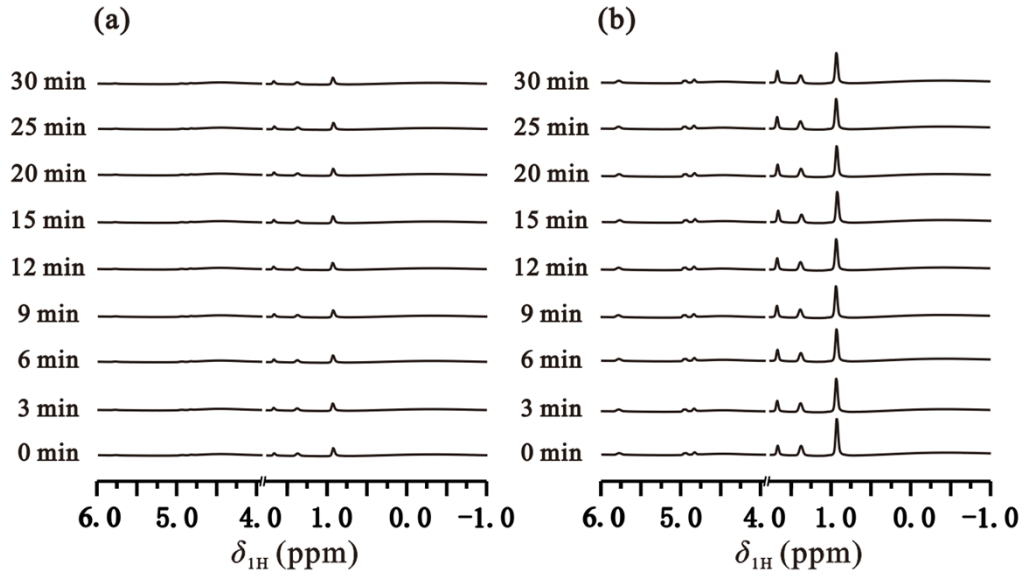

Figure S2. ^{1}H NMR spectra of propene hydrogenation with n-H_2 with time on stream (a) and corresponding static thermally polarized ^{1}H NMR spectra (b) over Rh/SP-S-1 catalyst. Experiments were conducted in ALTADENA model. Reaction conditions: temperature 100 ℃, reactant flow rate 200 sccm for p-H_2 and 50 sccm for propene, 30 mg catalyst.

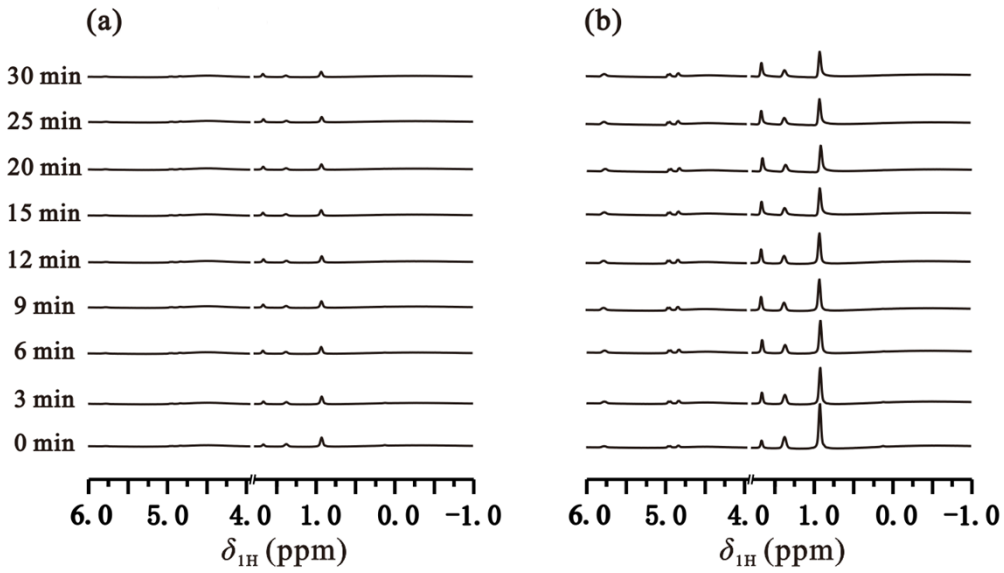

Figure S3. ^{1}H NMR spectra of propene hydrogenation with n-H_2 with time on stream (a) and corresponding static thermally polarized ^{1}H NMR spectra (b) over Rh/Nano-S-1 catalyst. Experiments were conducted in ALTADENA model. Reaction conditions: temperature 100 ℃, reactant flow rate 200 sccm for p-H_2 and 50 sccm for propene, 30 mg catalyst.

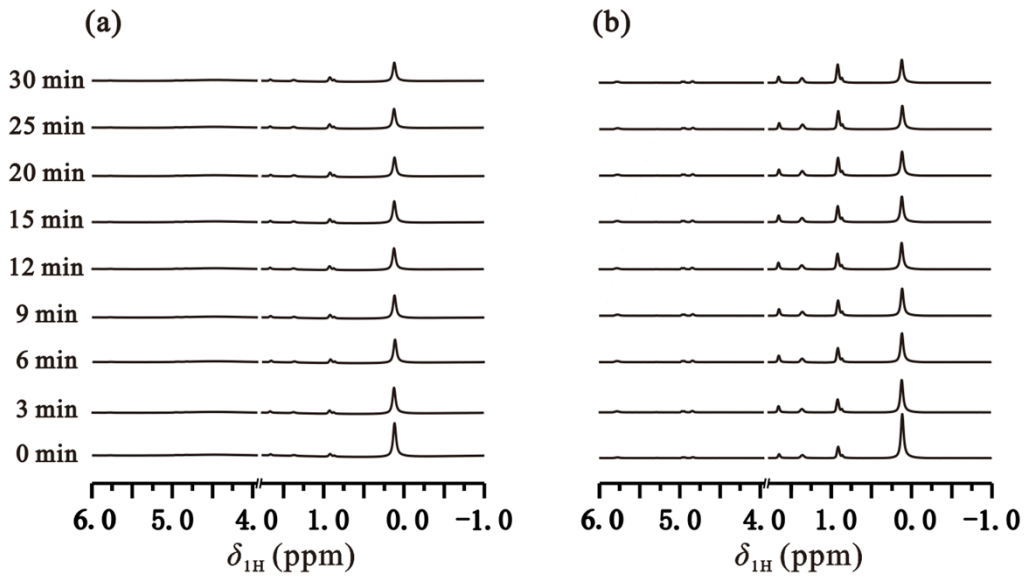

Figure S4. ^{1}H NMR spectra of propene hydrogenation with n-H_2 with time on stream (a) and corresponding static thermally polarized ^{1}H NMR spectra (b) over Rh@S-1 catalyst. Experiments were conducted in ALTADENA model. Reaction conditions: temperature 100 ℃, reactant flow rate 200 sccm for p-H_2 and 50 sccm for propene, 30 mg catalyst.

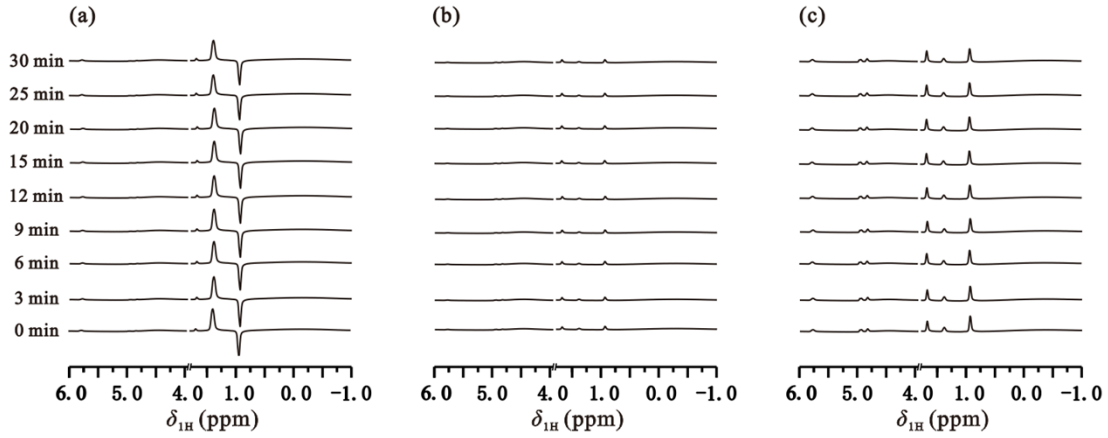

Figure S5. ^{1}H NMR spectra of propene hydrogenation with p-H_2 (a), n-H_2 (b) with time on stream and corresponding static thermally polarized ^{1}H NMR spectra (c) over Rh/SP-S-1 catalyst. Experiments were conducted in ALTADENA model. Reaction conditions: temperature 100 °C, reactant flow rate 200 sccm for p-H_2 and 50 sccm for propene, 10 mg catalyst.

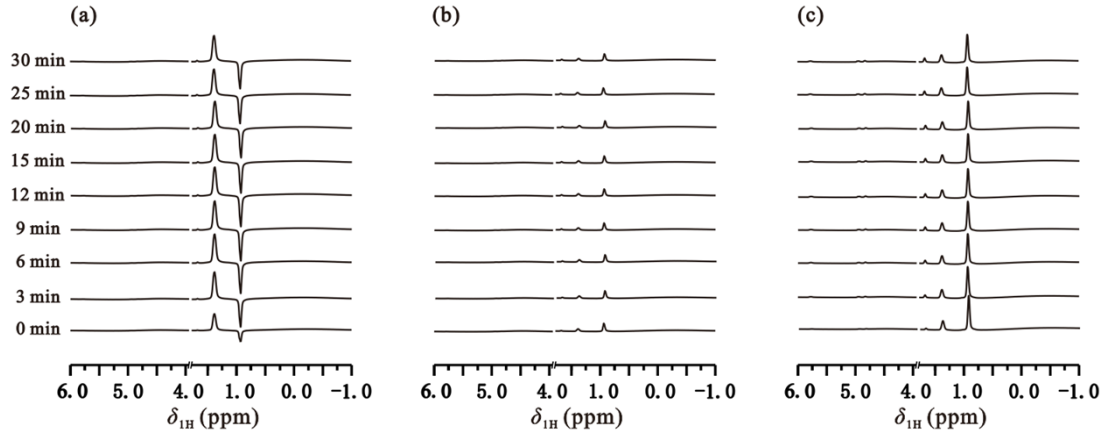

Figure S6. ^{1}H NMR spectra of propene hydrogenation with p-H_2 (a), n-H_2 (b) with time on stream and corresponding static thermally polarized ^{1}H NMR spectra (c) over Rh/SP-S-1 catalyst. Experiments were conducted in ALTADENA model. Reaction conditions: temperature 100 ℃, reactant flow rate 200 sccm for p-H_2 and 50 sccm for propene, 60 mg catalyst.