Supporting Information

Silver Nanoparticles Supported on Passivated Silica: Preparation and Catalytic Performance in Alkyne Semi-hydrogenation

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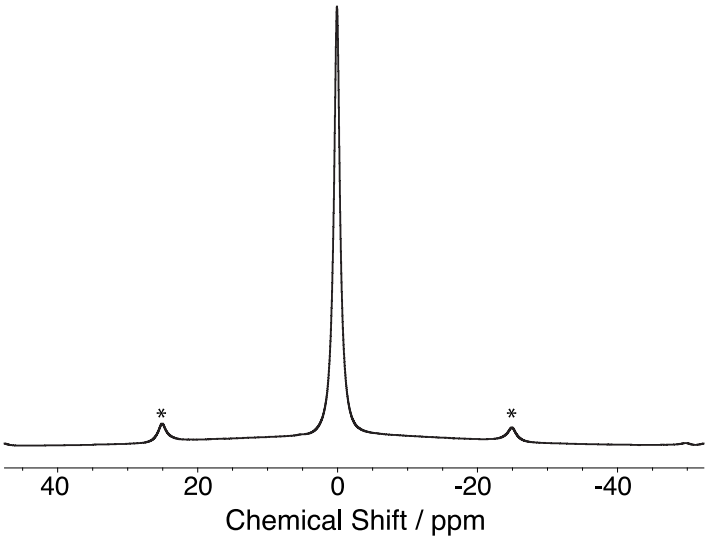


Figure S1: ^{1}H MAS NMR of Ag(I)@SiO_2 (10 kHz, 400 MHz, ns = 32). Spinning sidebands are denoted by *

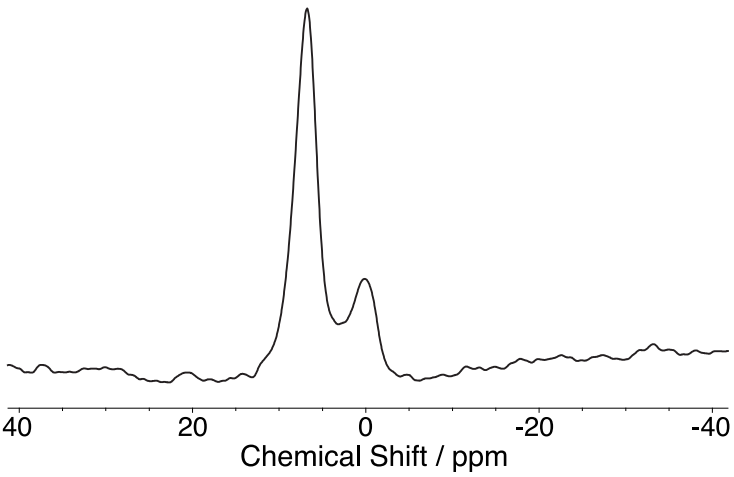


Figure S2: ^{13}C HPDEC MAS NMR of Ag(I)@SiO_2 (10 kHz, 400 MHz, ns = 30720)

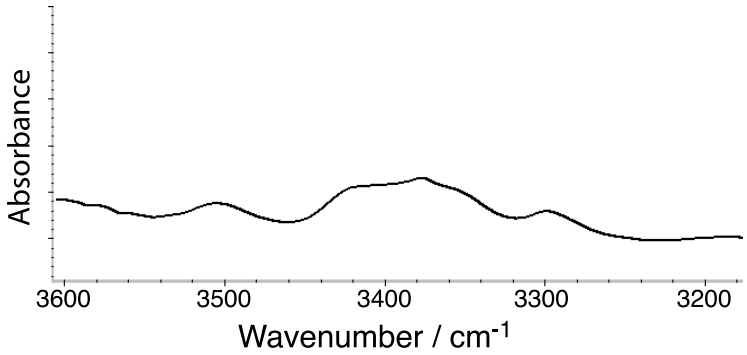


Figure S3: Zoom in of IR spectra of Ag_{NP}@$SiO_{2\text{-}TMS}$ showing N-H vibration region

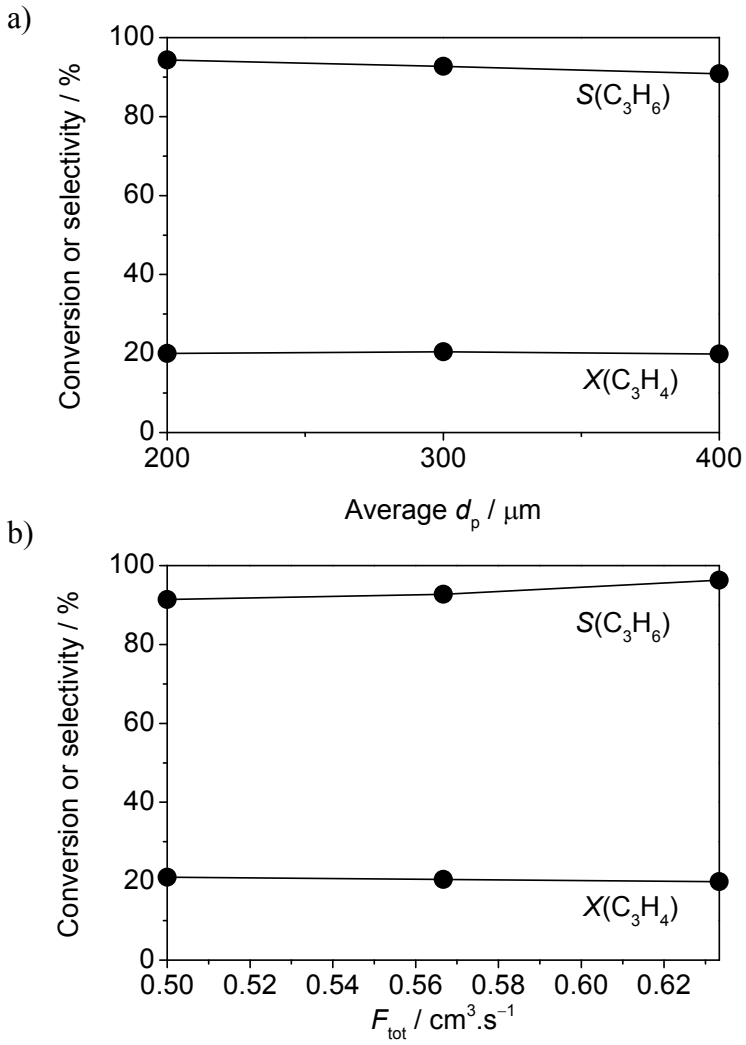


Figure S4: Conversion (X) of propyne and selectivity (S) towards propene versus a) average particle diameter determined by sieving (d_p) and b) total flow (F_{tot}). The influence of the average particle size was studied with 0.2 g of catalyst (sieve fraction = 0.1-0.3 mm, 0.2-0.4 mm, and 0.2-0.6 mm), at T = 200 °C, P = 1 bar, H_2/C_3H_4 = 25, τ (contact time) = 0.07 s. The influence of the flow rate was studied with variable catalyst mass (sieve fraction = 0.2-0.4 mm), keeping τ = 0.07 s, at T = 200 °C, P = 1 bar, H_2/C_3H_4 = 25.

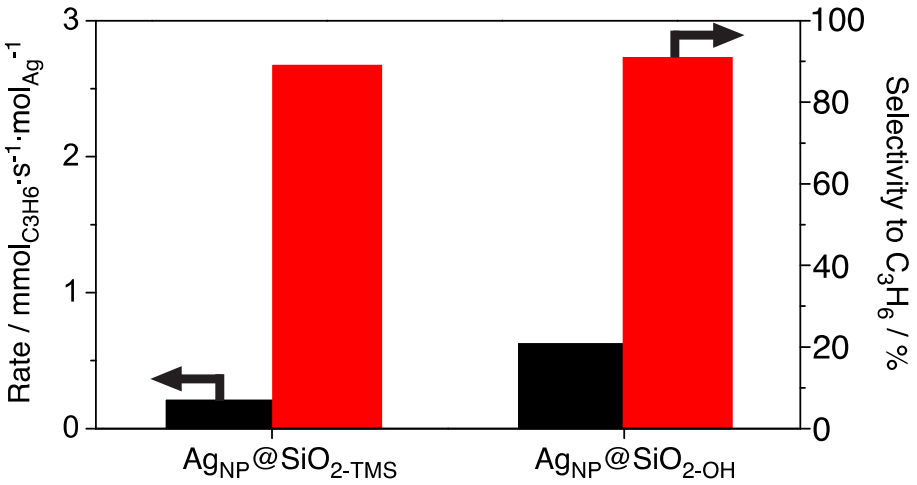


Figure S5: Catalytic activity and selectivity for the semi-hydrogenation of propyne for Ag_{NP}@SiO_{2-TMS} and Ag_{NP}@SiO_{2-OH} at 75% propyne conversion

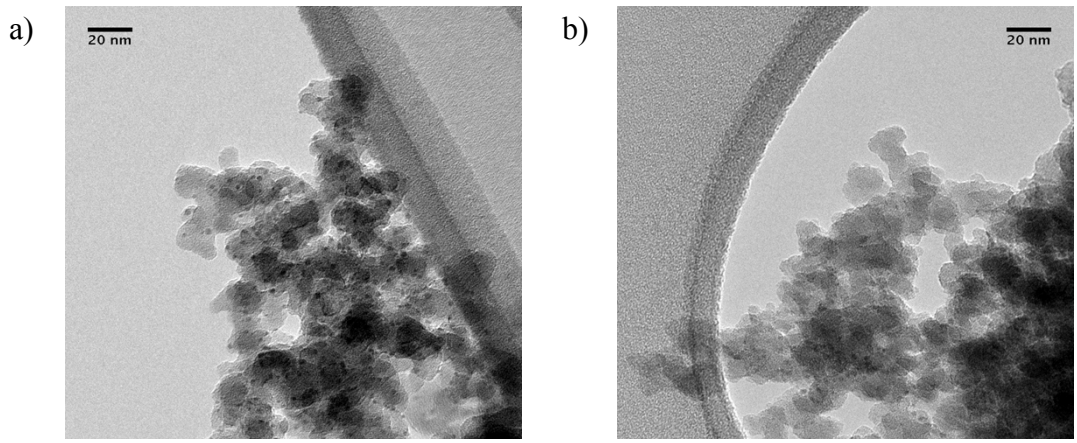
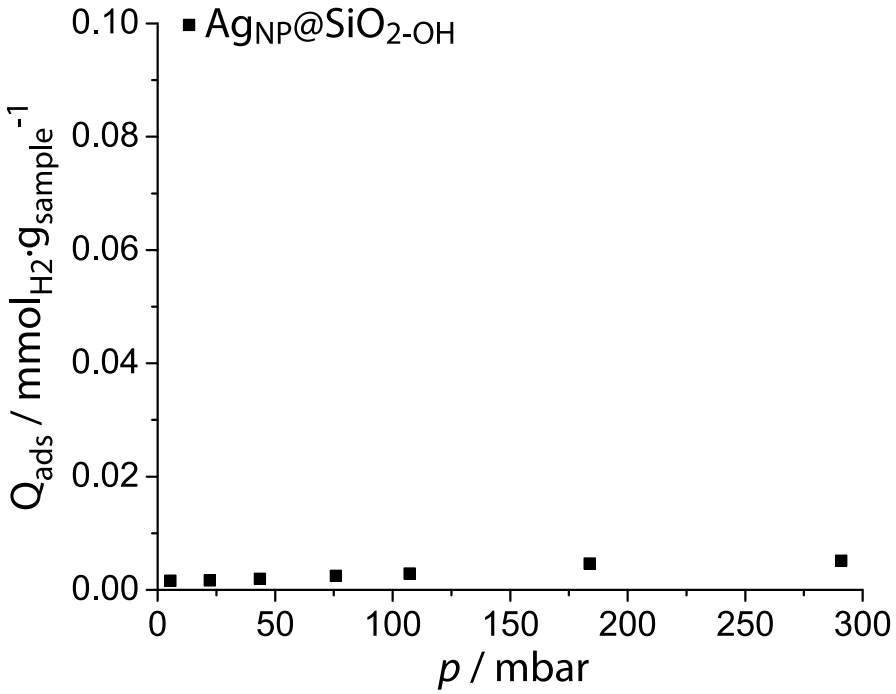


Figure S6: TEM images of a) Ag_{NP}@SiO_{2-TMS} and b) Ag_{NP}@SiO_{2-OH} after catalysis

a)



b)

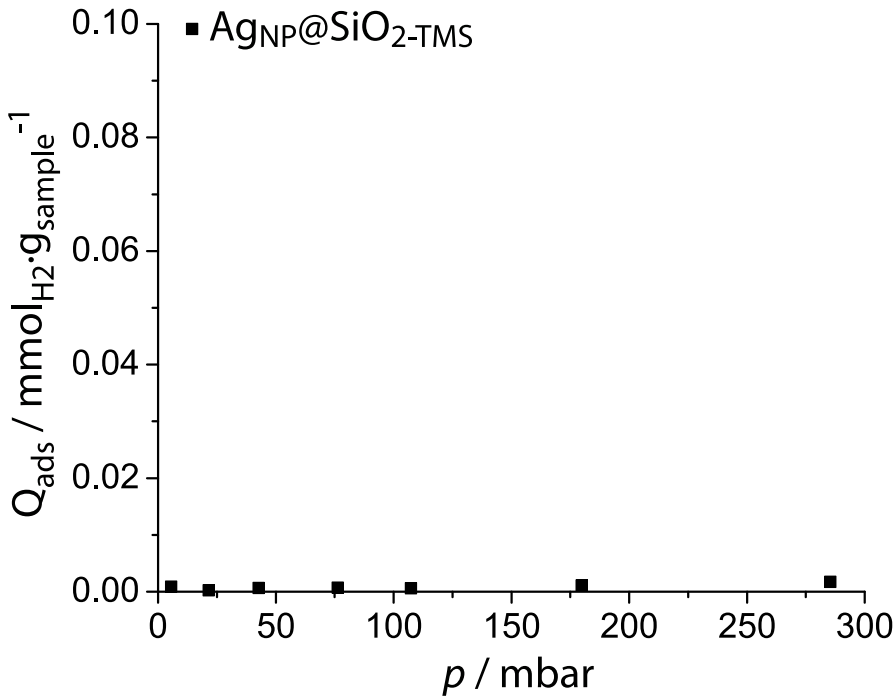
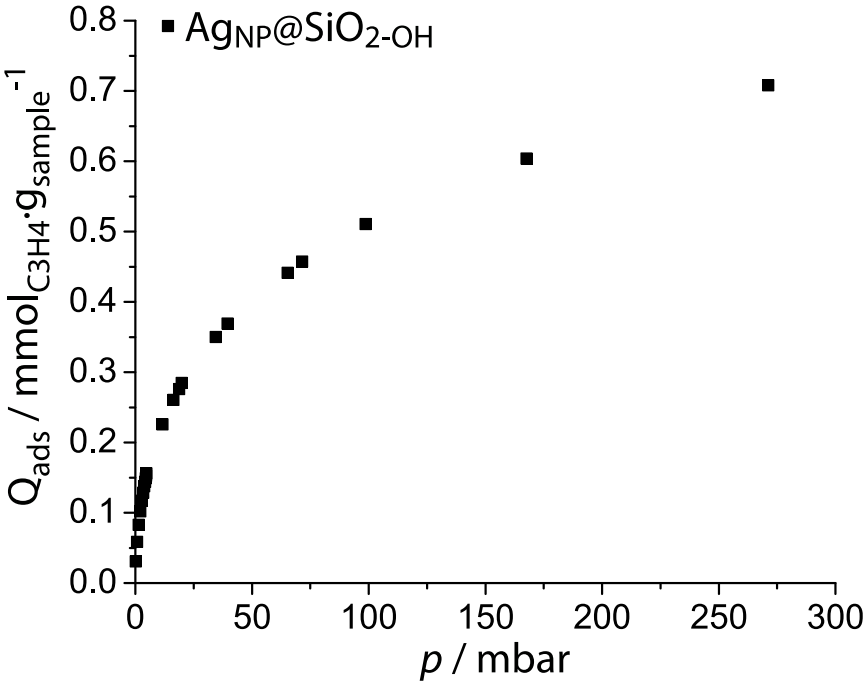


Figure S7: H_2 adsorption isotherms at 0 °C for a) $Ag_{NP}@SiO_{2\text{-}OH}$ and b) $Ag_{NP}@SiO_{2\text{-}TMS}$

a)



b)

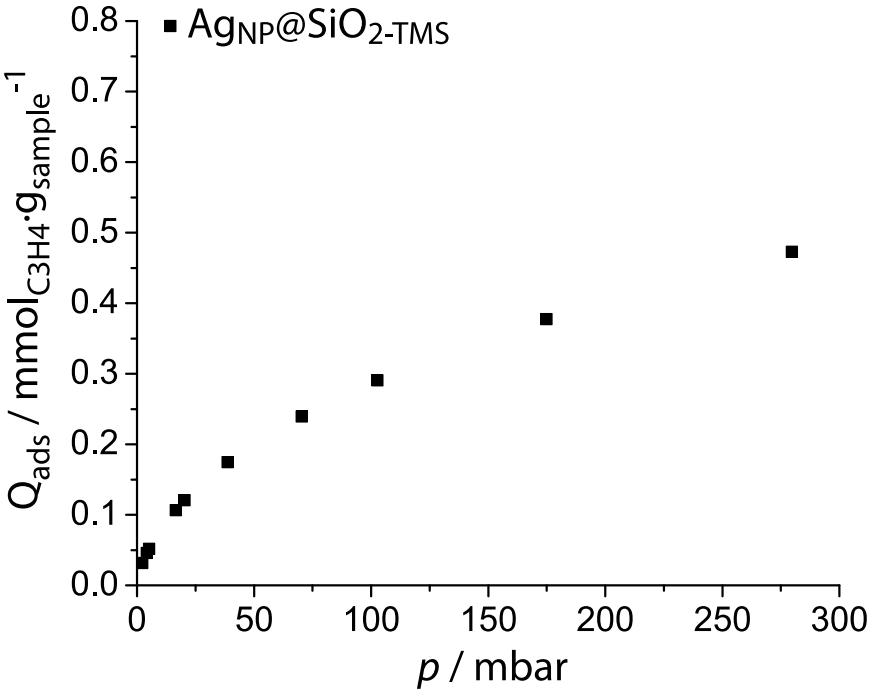


Figure S8: C_3H_4 adsorption isotherms at 0 °C for a) $Ag_{NP}@SiO_{2\text{-}OH}$ and b) $Ag_{NP}@SiO_{2\text{-}TMS}$