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$_2$-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, $H_2/C_3H_4 = 25$, $\tau$ (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 $\tau = 0.07$ 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$_{\text{NP}}$@SiO$_2$-TMS and Ag$_{\text{NP}}$@SiO$_2$-OH at 75% propyne conversion.

Figure S6: TEM images of a) Ag$_{\text{NP}}$@SiO$_2$-TMS and b) Ag$_{\text{NP}}$@SiO$_2$-OH after catalysis.
Figure S7: H$_2$ adsorption isotherms at 0 °C for a) Ag$_{NP}$@SiO$_2$-OH and b) Ag$_{NP}$@SiO$_2$-TMS.
Figure S8: C$_3$H$_4$ adsorption isotherms at 0 °C for a) Ag$_{\text{NP}}$@SiO$_2$-OH and b) Ag$_{\text{NP}}$@SiO$_2$-TMS