

Supporting Information

Highly efficient and selective hydrogenation of chloronitrobenzenes to chloroanilines by H₂ over confined silver nanoparticles

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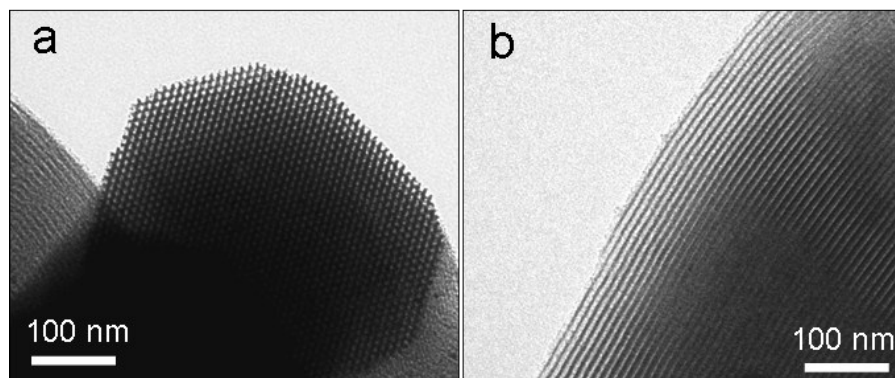


Figure S1. TEM images of SBA-15 with the diameter of around 7 nm.

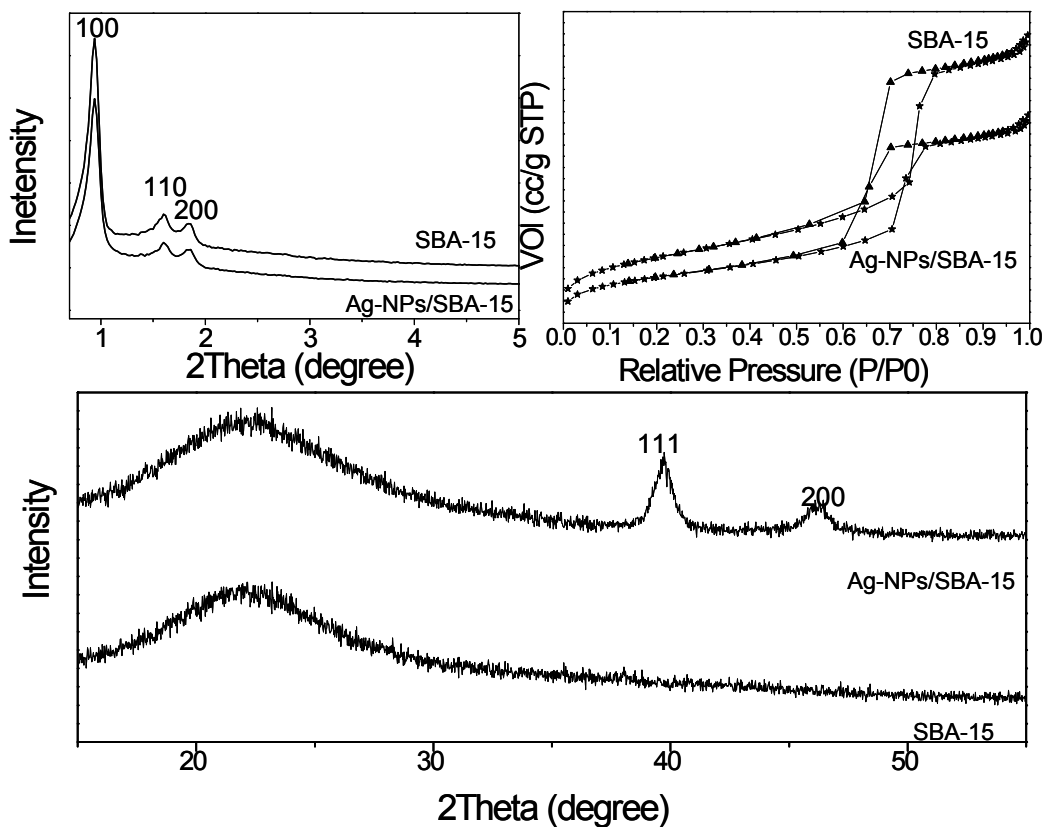


Figure S2. (a) The Low-angle XRD patterns, (b) Nitrogen-sorption isotherms and (c) the wide-angle XRD patterns of calcined SBA-15 and Ag-NPs/SBA-15 (4 wt%), respectively

Table S1. Physicochemical properties of selected samples

Sample	$S_{\text{BJH}}/\text{m}^2\text{g}^{-1}$	$V_t/\text{cm}^3\text{g}^{-1}$	$D_{\text{pore}}/\text{nm}$
SBA-15	680	0.93	6.8
Ag-NPs/SBA-15	570	0.75	5.9

S_{BJH} , BJH specific surface area; V_t , total pore volume; D_{BJH} , pore diameter calculated using BJH method.

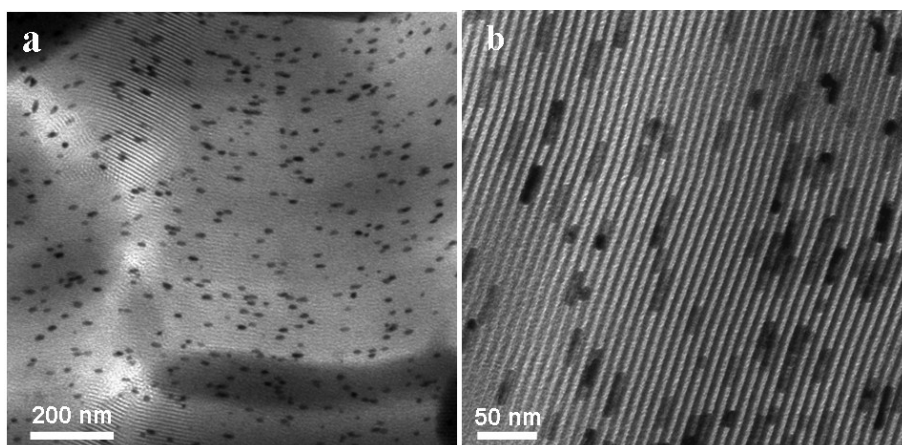


Figure S3. (a, b) TEM images of the as-synthesized Ag-NRs/SBA-15.

Table S2. Selective hydrogenation of various chloronitrobenzenes over Ag-NPs/SBA-15 catalyst.

Entry	Substrate	Product	Con (%)	Sel (%)
1	m-chloronitrobenzene	m-chloroaniline	100	>99
2	p-chloronitrobenzene	p-chloroaniline	100	>99
3	1, 5-dichloronitrobenzene	1, 5-dichloroaniline	100	>99

Reaction conditions: 0.1 g of the catalyst, 4 wt% Ag, 0.5 g of the substrate and 25 ml of ethanol,

T= 140 °C, P= 2 MPa, Time = 2.5 h.

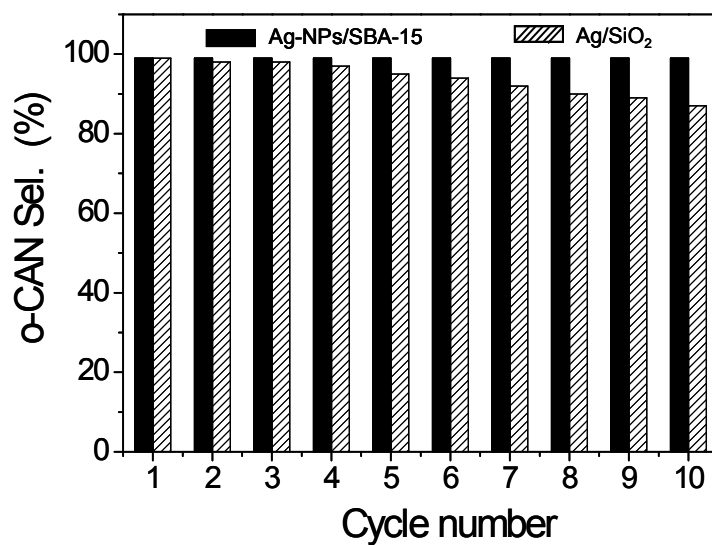


Figure S4. The selectivity of o-chloroaniline (o-CAN) over the Ag-NPs/SBA-15 and Ag/SiO₂ catalysts. Reaction conditions: 0.1 g of the catalyst, 4 wt% Ag, 0.5 g of the substrate and 25 ml of ethanol, T= 140 °C, P= 2 MPa, Time= 3 h.

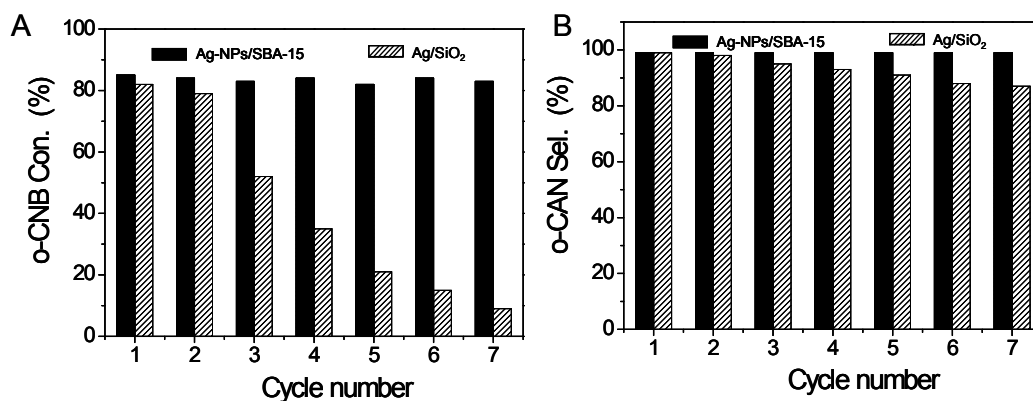


Figure S5. The hydrogenation of o-chloronitrobenzene (o-CNB) to o-chloroaniline (o-CAN) over the Ag-NPs/SBA-15 and Ag/SiO₂ catalysts. Reaction conditions: 0.1 g of the catalyst, 4 wt% Ag, 0.5 g of the substrate and 25 ml of ethanol, T= 140 °C, P= 2 MPa, Time= 2.5 h.