

SUPPORTING INFORMATION

Hybrid catalysts based on N-heterocyclic carbene anchored on hierarchical zeolites

Enrica Gianotti^{1*}, Ivana Miletto¹, Chiara Ivaldi¹, Geo Paul¹, Leonardo Marchese¹, Marta Meazza², Ramon Rios² and Robert Raja²

¹Department of Science and Technological Innovation, Università del Piemonte Orientale, V. T. Michel 11, I-15100 Alessandria, Italy.

²School of Chemistry, University of Southampton, University Road, Southampton, SO17 1BJ, U.K.

* Correspondence: enrica.gianotti@uniupo.it

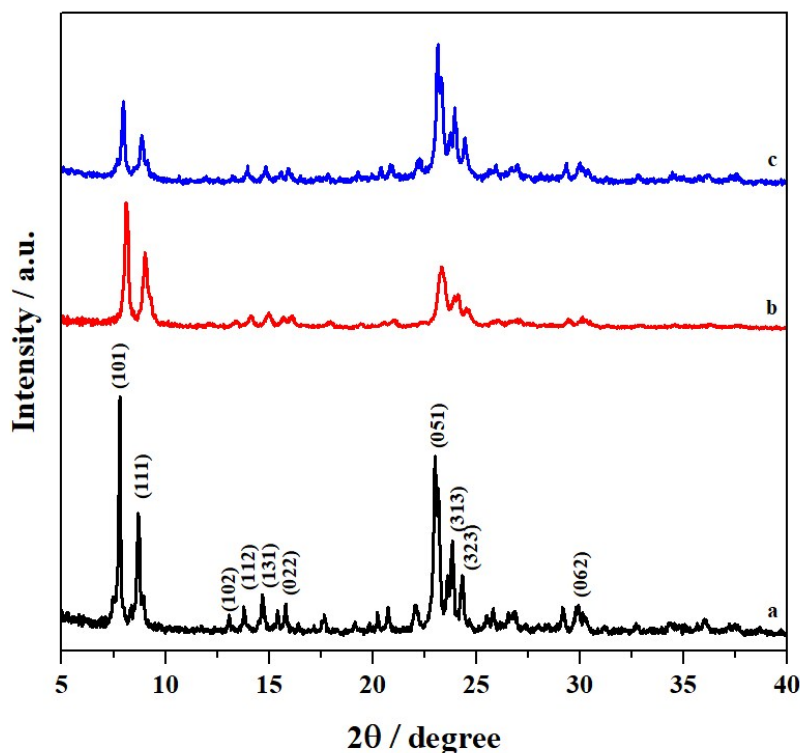


Fig.S1. The XRD pattern of microporous HZSM-5 (a, black), HP HZSM-5 (b, red) and NHC-HP HZSM-5 (c, blue).

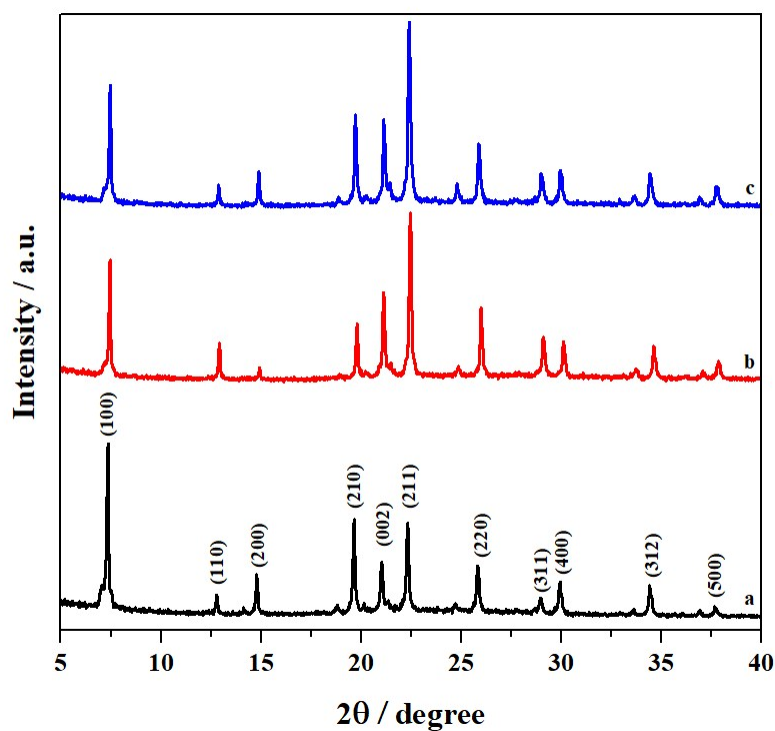


Fig.S2. The XRD patterns of microporous SAPO-5 (a, black), HP SAPO-5 (b, red) and NHC-HP SAPO-5 (c, blue).

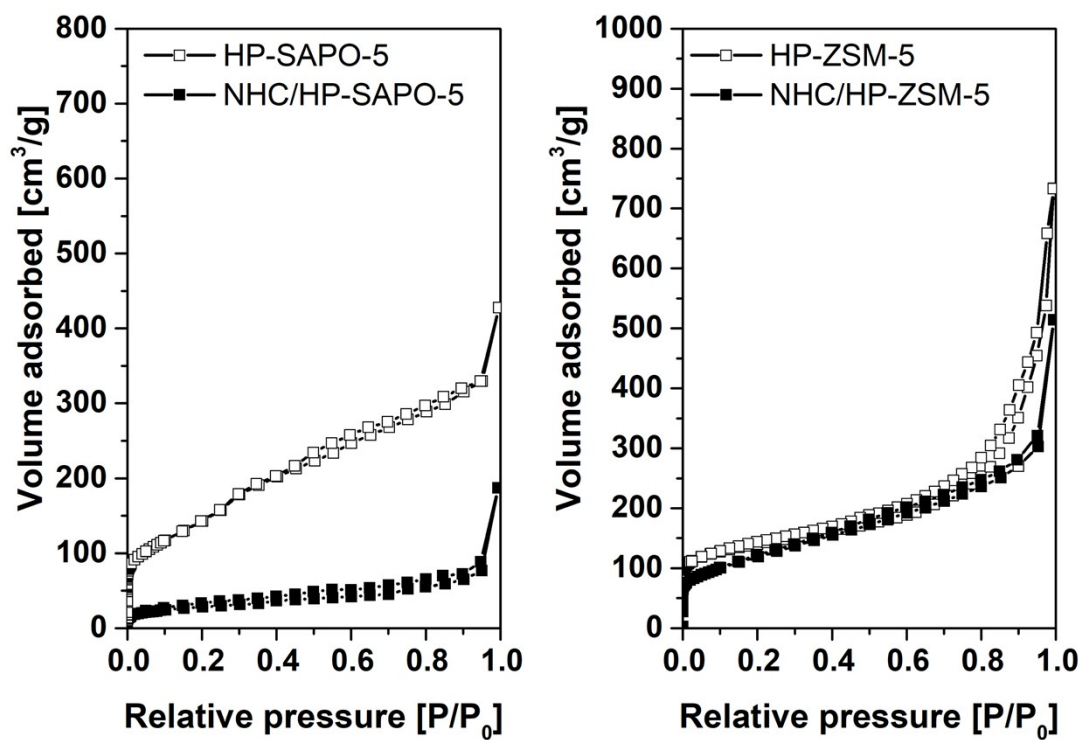


Fig. S3. N₂ adsorption/desorption isotherms at 77 K of HP-SAPO-5, NHC/HP-SAPO-5 HP-HZSM-5 and NHC/HP-HZSM-5.

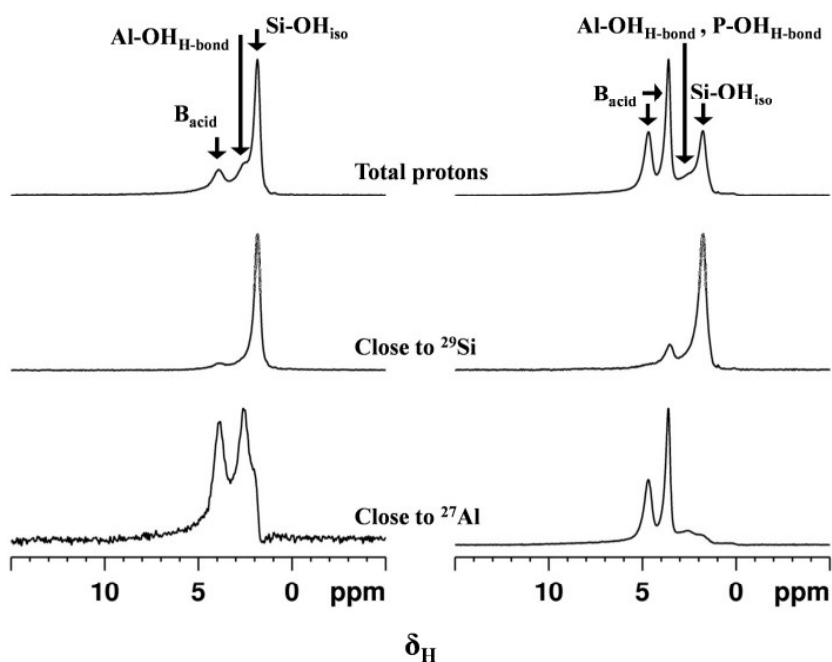


Fig. S4. ^1H rotor-synchronized spin-echo NMR spectra of calcined HP-HZSM-5 (left panel) and calcined HP-SAPO-5 (right panel) recorded without (top) and with (middle) ^{27}Al irradiation. A MAS rate of 15 kHz and an echo delay of 2ms were employed during the experiments. The difference spectra (top-middle) is shown at the bottom.

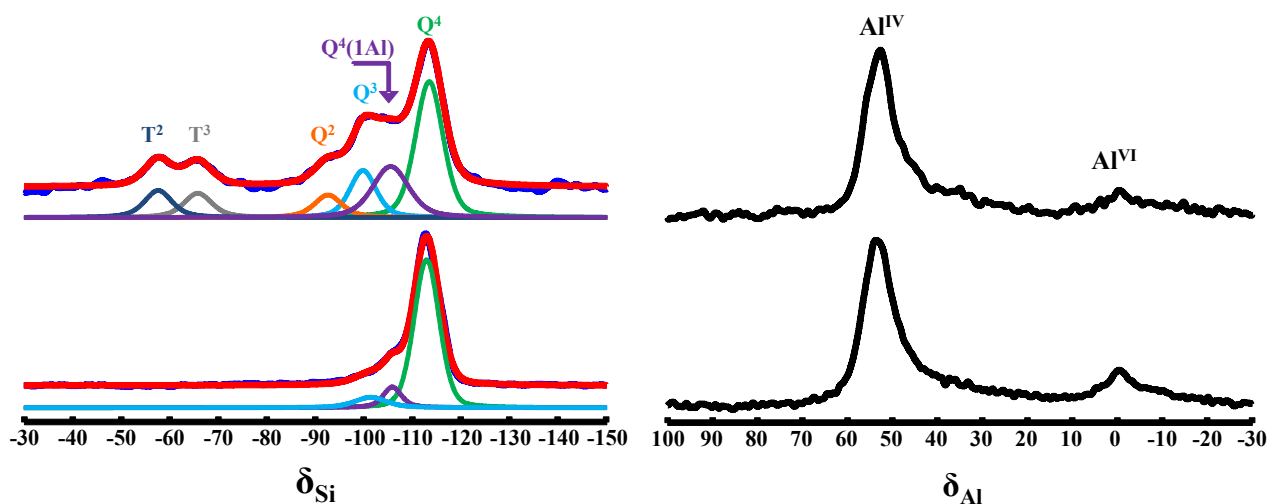


Fig. S5. ^{29}Si (left panel) and ^{27}Al (right panel) NMR spectra of NHC/HP-HZSM-5 (top) and HP-HZSM-5 (bottom). ^{29}Si and ^{27}Al NMR spectra were recorded using a MAS rate of 10 and 15 kHz, respectively.

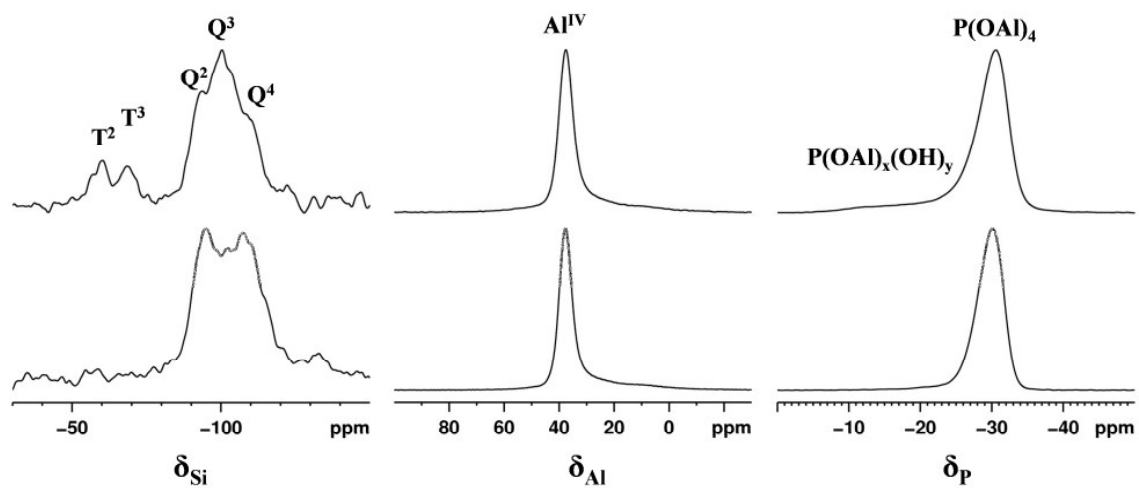


Fig. S6. ^{29}Si (left panel), ^{27}Al (middle panel) and ^{31}P (right panel) NMR spectra of NHC/HP-SAPO-5 (top) and HP-SAPO-5 (bottom). ^{29}Si , ^{27}Al and ^{31}P NMR spectra were recorded using a MAS rate of 10 and 15 kHz, respectively.