Tailoring 2D and 3D Molecular Sieves Structure for Polyolefins Composites: Do All Roads Lead to Remarkable Performances?

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**Figure SI_01.** $\text{N}_2$ adsorption/desorption isotherms of MCM-41 and MCM-48 and their respectively catalysts.

**Figure SI_02.** XRD of MCM-41 (a), NH$_2$-MCM-41 (b), Oct-Fluorene-NH-MCM-41 (c) and 3@MCM-41 (d).

**Figure SI_03.** $^{13}$C CP/MAS NMR of NH$_2$-MCM-41 (a), Oct-Fluorene-NH-MCM-41 (b) and 3@MCM-41 (c). #residual DIPEA.

**Figure SI_04.** Melting (A) and crystallization (B) temperatures of PE made by 2@magadiite in the absence (a) and presence (b) of 1-octene and 2@MCM-48 in the absence (c) and presence (d) of 1-octene. C) $^{13}$C NMR at 100 °C of PE made by 2@magadiite in the absence (a) and absence (b) of 1-octene.

**Figure SI_05.** $^{13}$C NMR for polymers made by homogeneous 5 (a), 5@Magadiite (b) and 5@n-alkyl-AlPO-kan (c).
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