

**An Improvement of the Derjaguin-Broekhoff-de Boer Theory  
for Capillary Condensation/Evaporation of Nitrogen  
in Mesoporous Systems and its Implications for Pore Size Analysis  
of MCM-41 Silicas and Related Materials**

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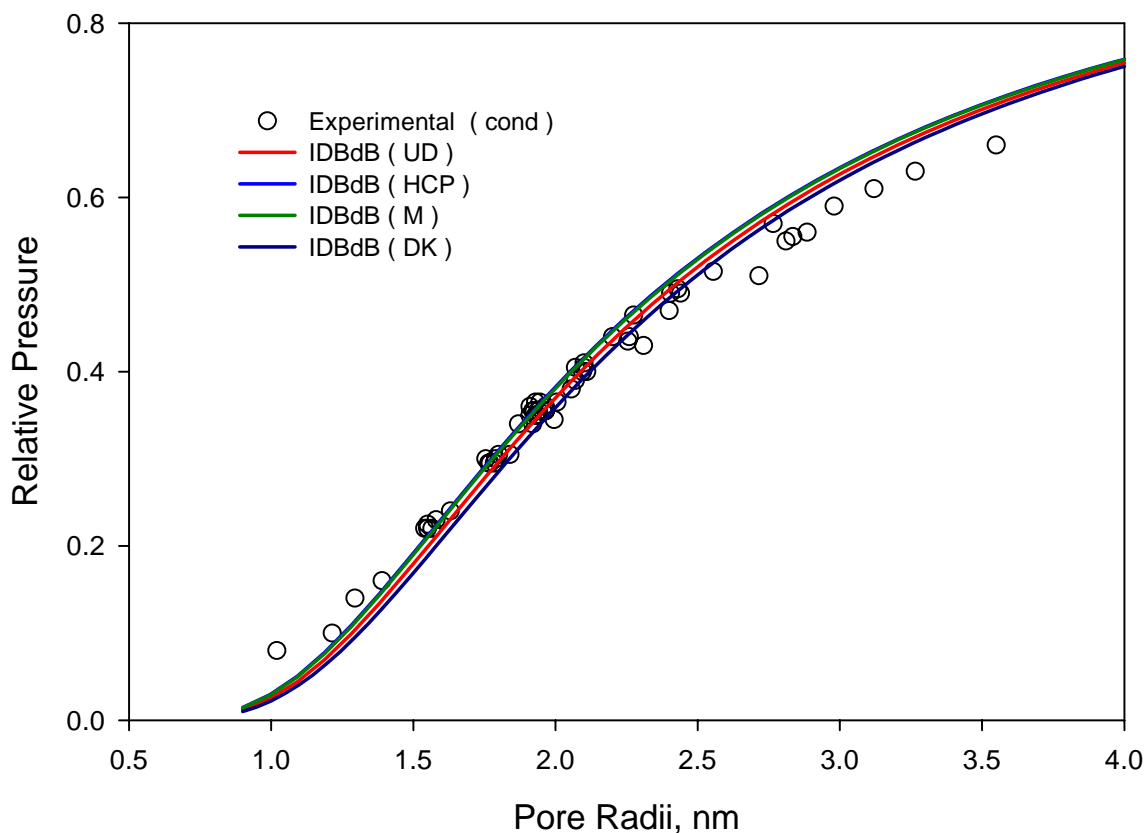
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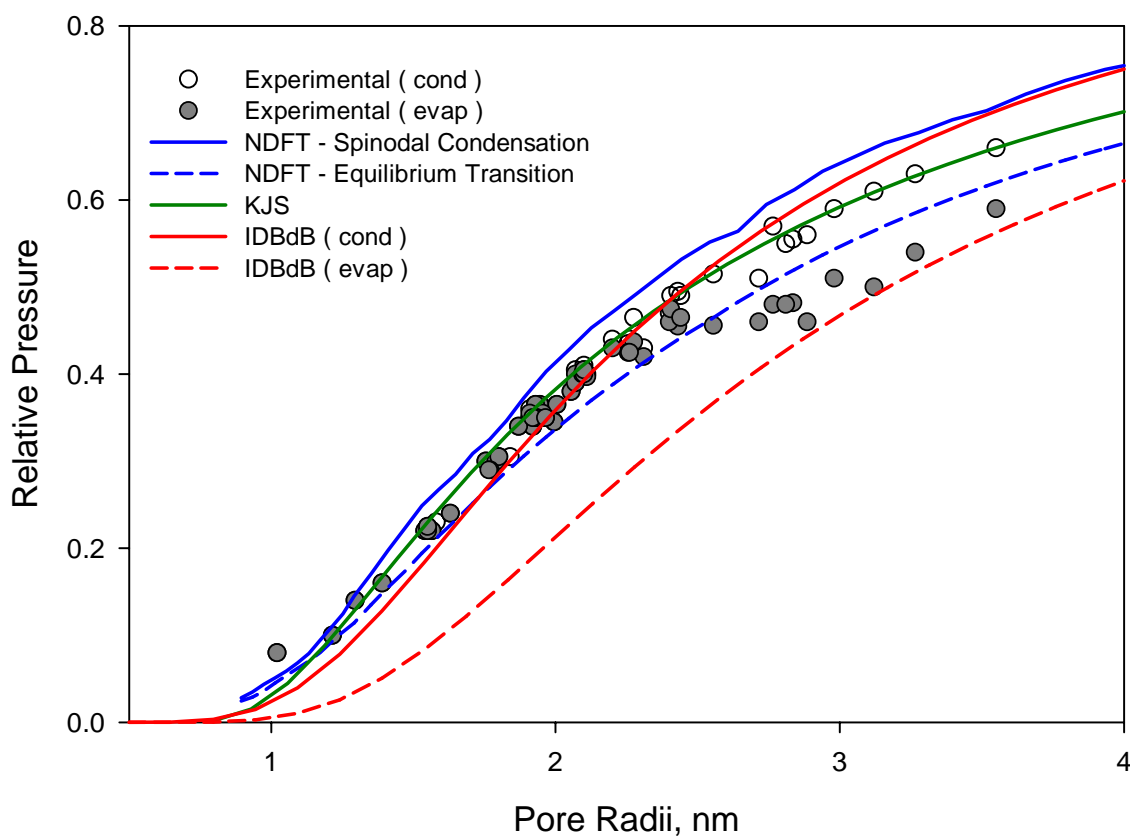
**Figure 1S.** Impact of the different approximations for the displacement of the surface of zero mass density,  $\delta$ , on the capillary condensation pressure. Abbreviations: experimental capillary condensation pressure (open circles), UD – Ustinov and Do approach,<sup>1S</sup> HCP – hexagonal closed packed spheres,<sup>2S</sup> M – Miyata et al.,<sup>3S</sup> DK – Dubinin and Kadlec relation.<sup>4S</sup>

1S) Do, D.D.; Do, H.D.; Ustinov, E.A. *Langmuir* **2003**, *19*, 2215.

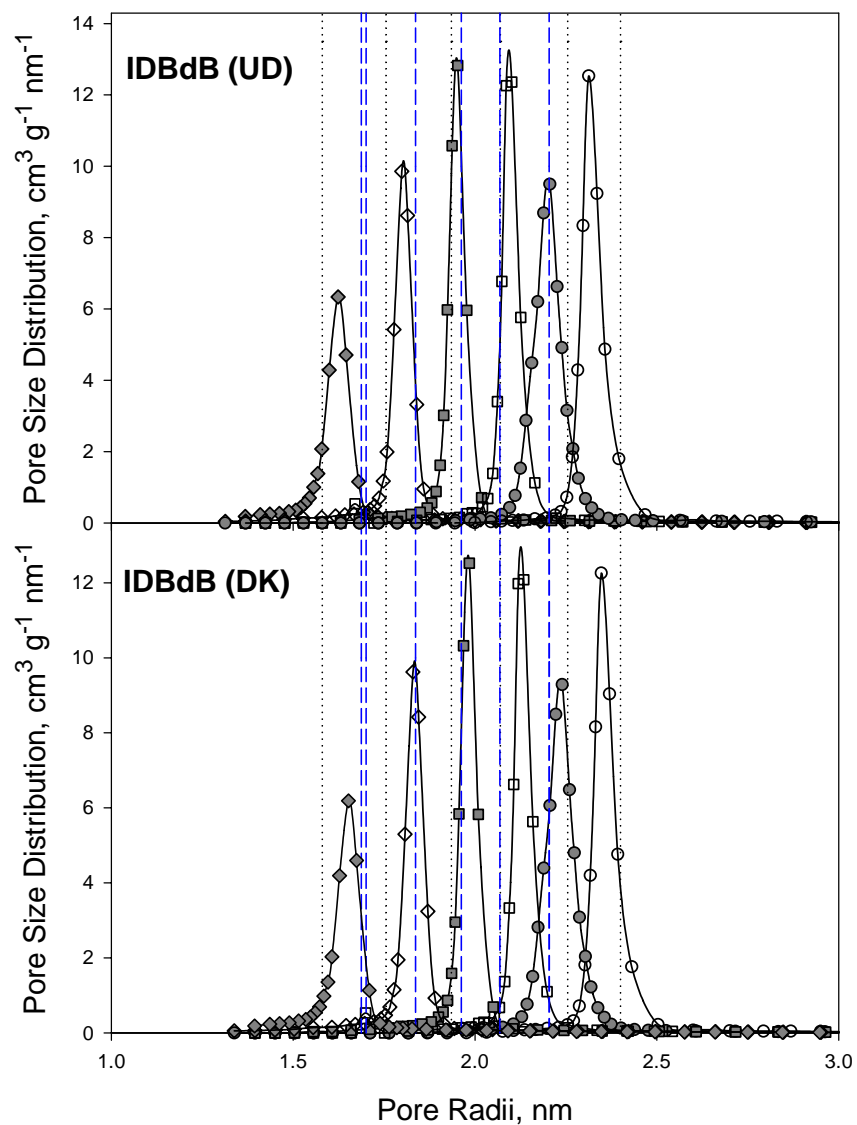
2S) Sonwane, C.G.; Bhatia, S.K. *J. Phys. Chem. B*, **2000**, *104*, 9099.

3S) Miyata, T.; Endo, A.; Ohmori, T.; Akiya, T.; Nakaiwa, M. *J. Colloid Interface Sci.* **2003**, *262*, 116.

4S) Kadlec, O.; Dubinin, M.M. *J. Colloid Interface Sci.* **1969**, *31*, 479.



**Figure 2S.** Comparison of the experimental relation between the pore radii and the capillary condensation/evaporation pressures (open/close circles) with improved DBdB method (solid bold red line – condensation curve, dashed bold red line – evaporation curve), NDFT method (solid bold blue line – condensation curve, dashed bold blue line – evaporation curve) and KJS empirical relation (bold green line).



**Figure 3S.** Impact of the different approximations for the displacement of the surface of zero mass density,  $\delta$ , on the MCM-41 pore size distributions. Abbreviations: UD - Ustinov and Do relation,<sup>1S</sup> DK - Dubinin and Kadlec relation.<sup>4S</sup> For comparison purposes this figure shows also the XRD pore radii estimations (dotted lines) and NDFT spinodal condensation reported by Neimark et al. (blue dashed lines).