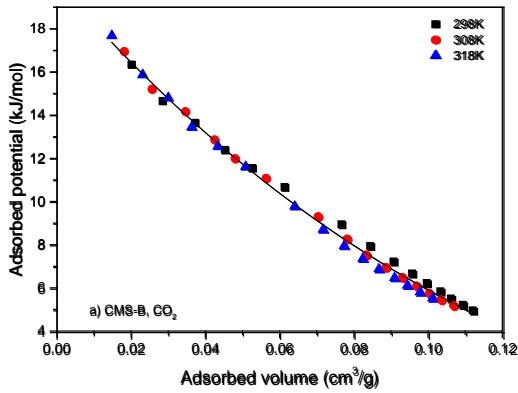
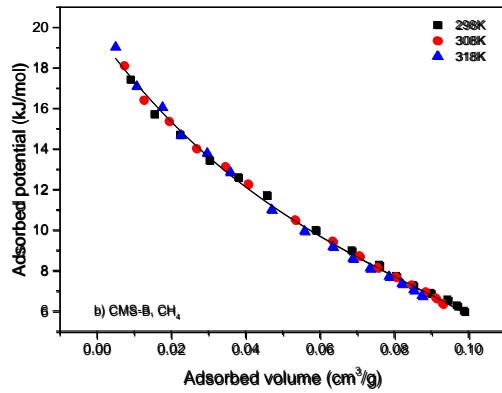


1 **Supporting Information**

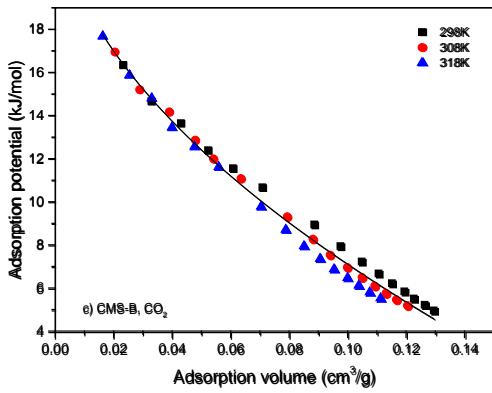
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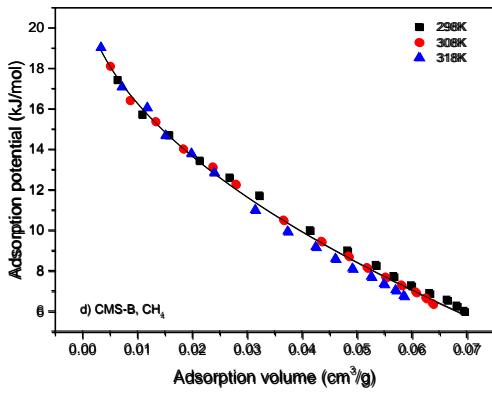
3
4 a) CO_2 characteristic curves on CMS-B



3
4 b) CH_4 characteristic curves on CMS-B



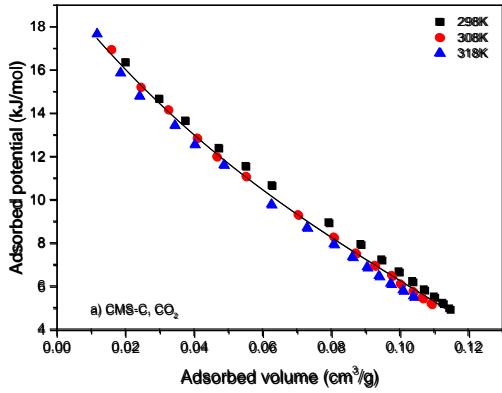
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6 c) CO_2 characteristic curves on CMS-B



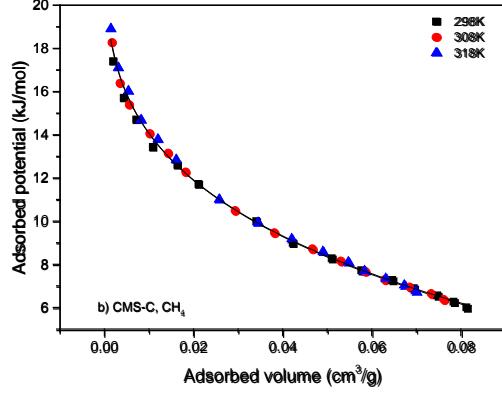
5
6 d) CH_4 characteristic curves on CMS-B

7 Fig.S1 Adsorption characteristic curves of CO_2 and CH_4 on CMS-B. Fig.3a) and b) calculated by methods in
8 Group 1; c), d) by methods in Group 2. **The solid lines represent exponential form fitting curves.**

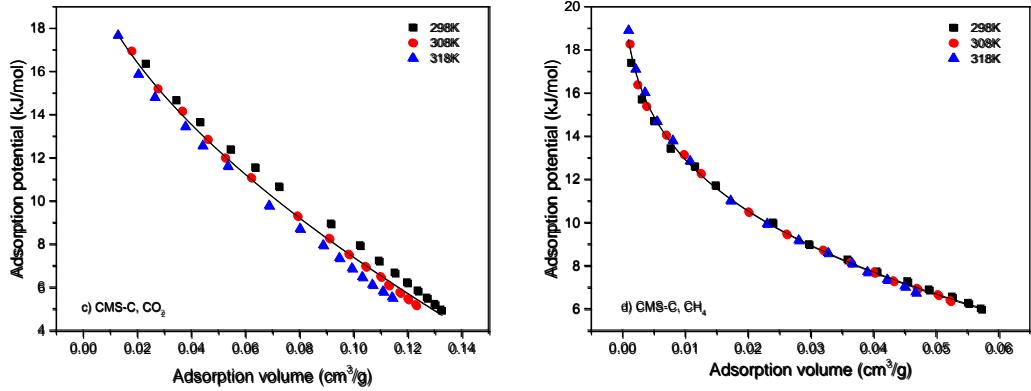
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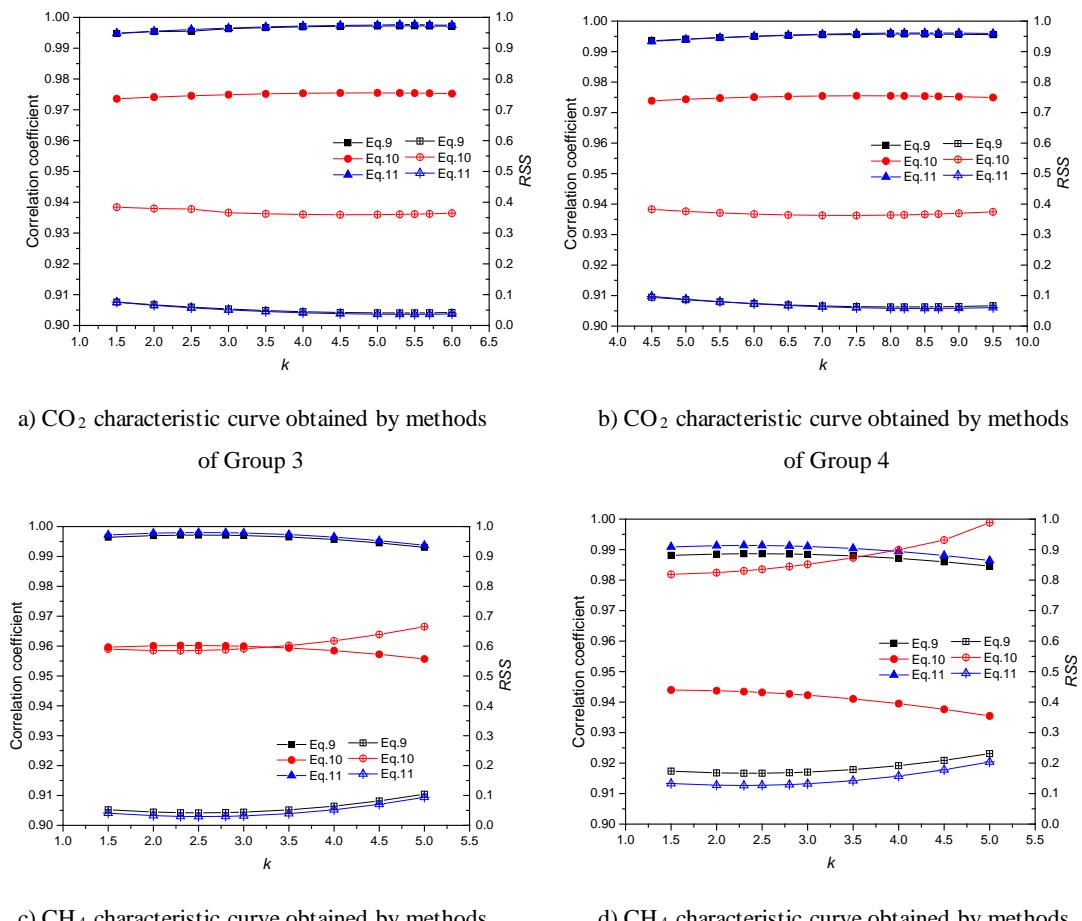
10
11 a) CO_2 characteristic curves on CMS-C



10
11 b) CH_4 characteristic curves on CMS-C



1
2 c) CO_2 characteristic curves on CMS-C
3 d) CH_4 characteristic curves on CMS-C
4 Fig.S2 Adsorption characteristic curves of CO_2 and CH_4 on CMS-C. Fig.4a) and b) e calculated by methods in
5 group 1; c), d) by methods in Group 2. **The solid lines represent exponential form fitting curves.**



6
7 a) CO_2 characteristic curve obtained by methods
8 of Group 3
9 b) CO_2 characteristic curve obtained by methods
10 of Group 4
11 c) CH_4 characteristic curve obtained by methods
12 of Group 3
13 d) CH_4 characteristic curve obtained by methods
14 of Group 4
Fig.S3 Variation of correlation coefficient and RSS with parameter k for characteristic curves on CMS-B. Solid
points and center points show correlation coefficient and RSS, respectively.

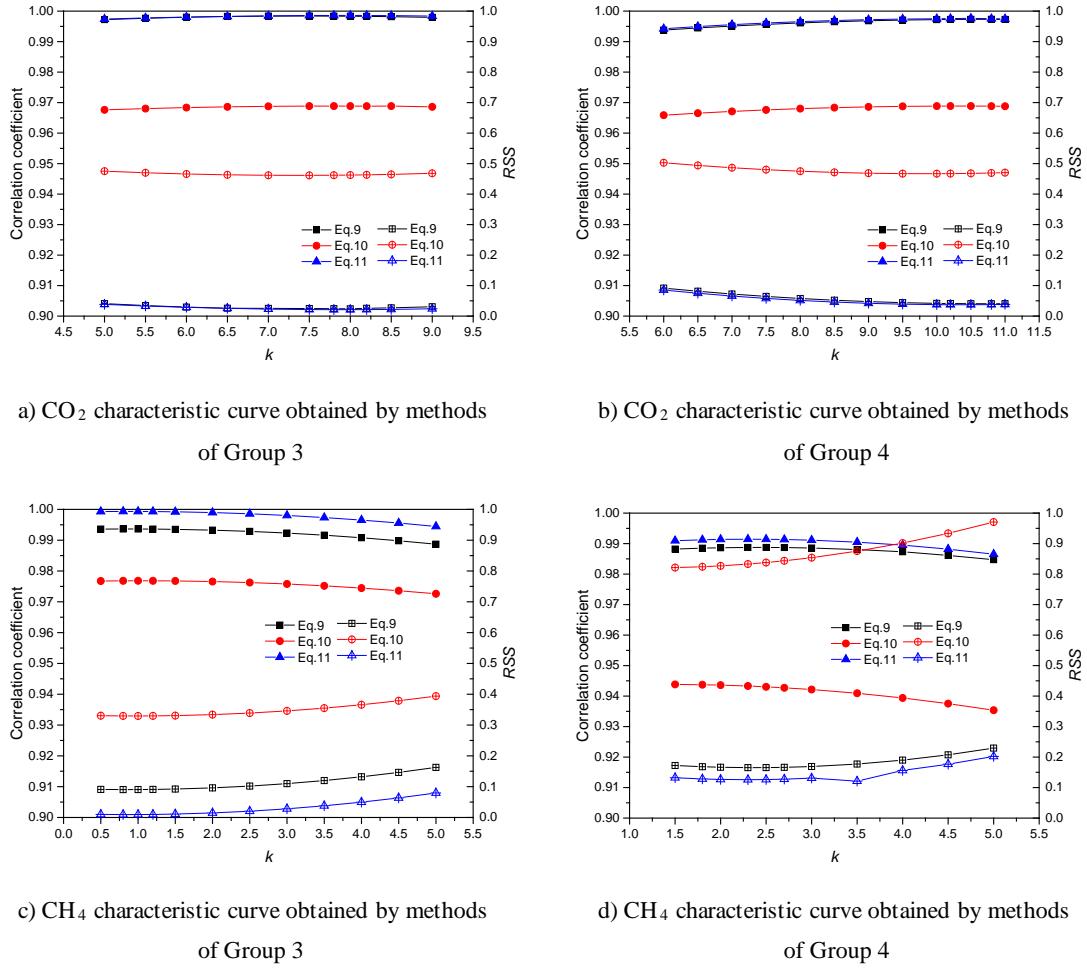


Fig.S4 Variation of correlation coefficient and RSS with parameter k for characteristic curves on CMS-C. Solid points and center points show correlation coefficient and RSS , respectively.

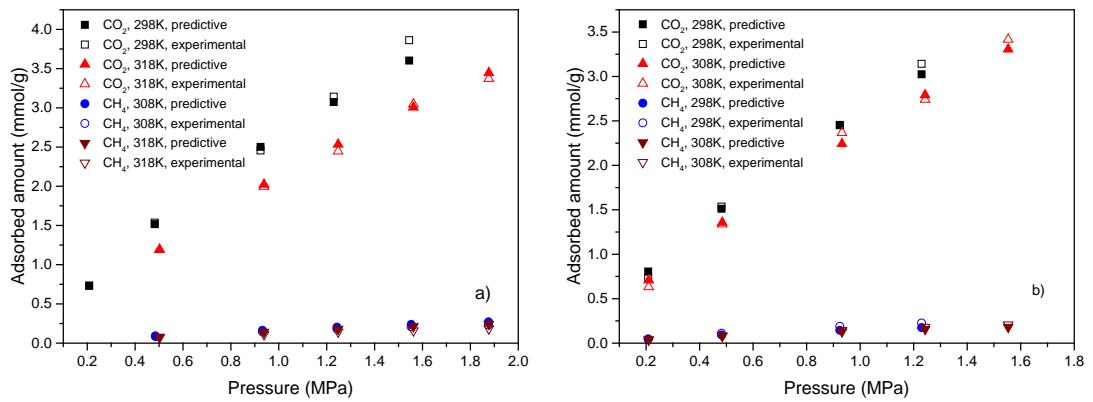


Fig.S5 Predictive adsorption isotherms via experimental data^[46]. (Fig.S5a) shows the isotherms of CO_2 predicted by the data at 308 K and the isotherms of CH_4 predicted by the data at 298 K. Fig.S5b) shows the isotherms of CO_2 and CH_4 both predicted by the data at 318 K)