Electronic Supplementary Material (ESI) for Materials Advances.

Supporting Information

Silsesquioxane-based and Triptycene-linked Nanoporous Polymers (STNPs) with High Surface Area for CO_2 Uptake and Efficient Dye Removal Applications

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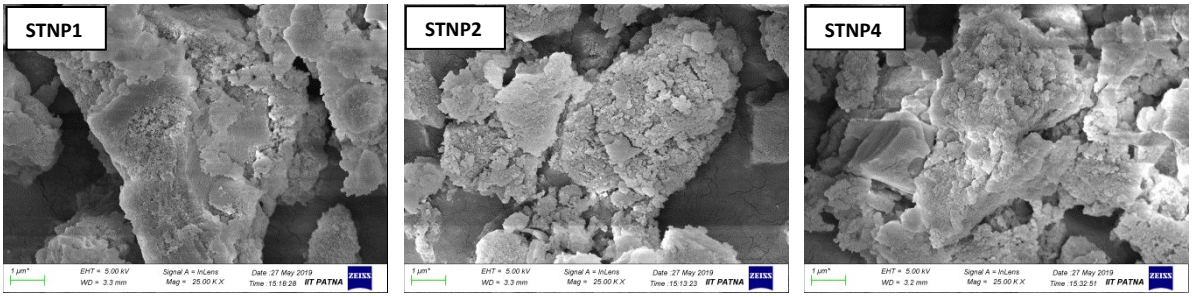


Figure S1. FESEM image of **STNP1, STNP2 and STNP4**

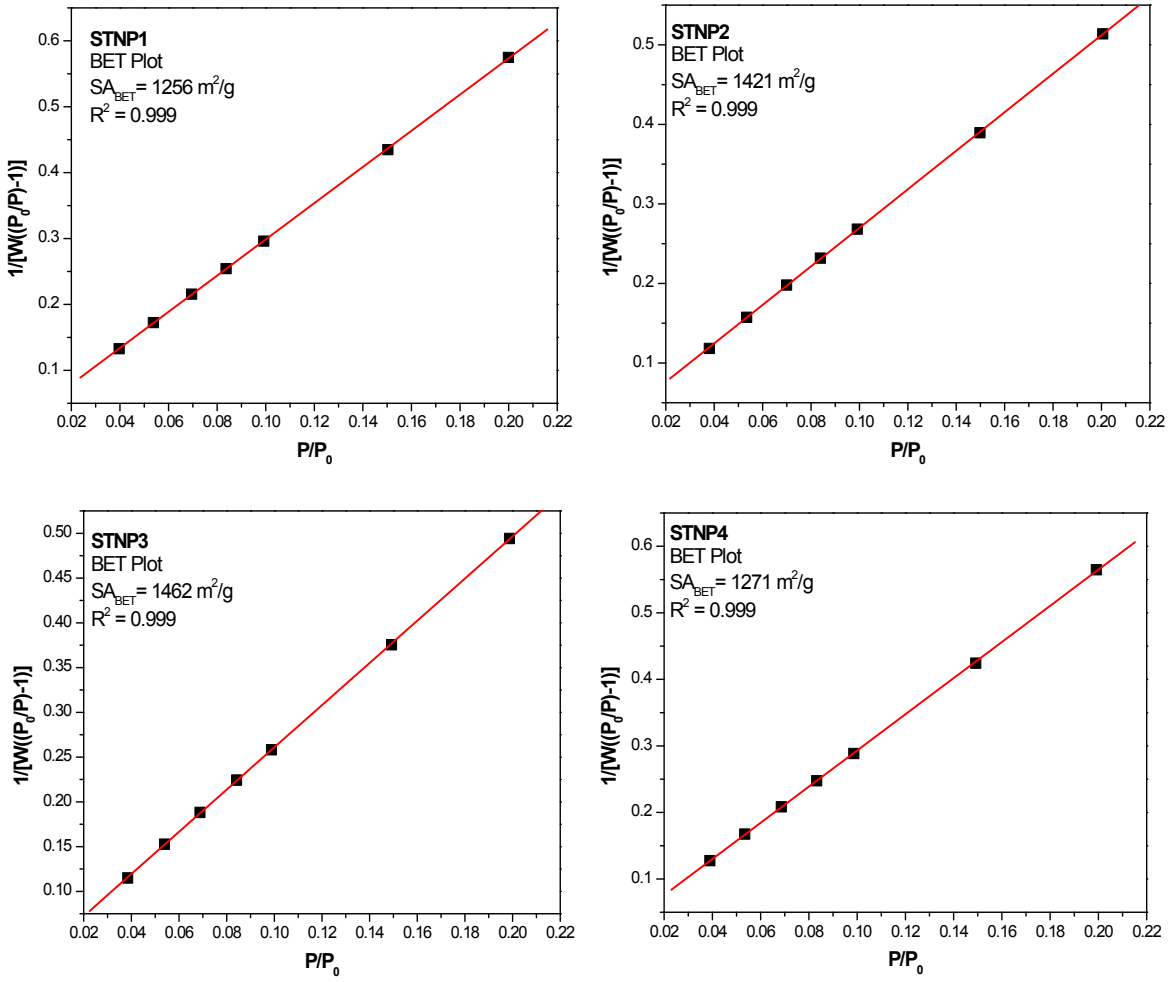


Figure S2. BET plot of **STNPs**

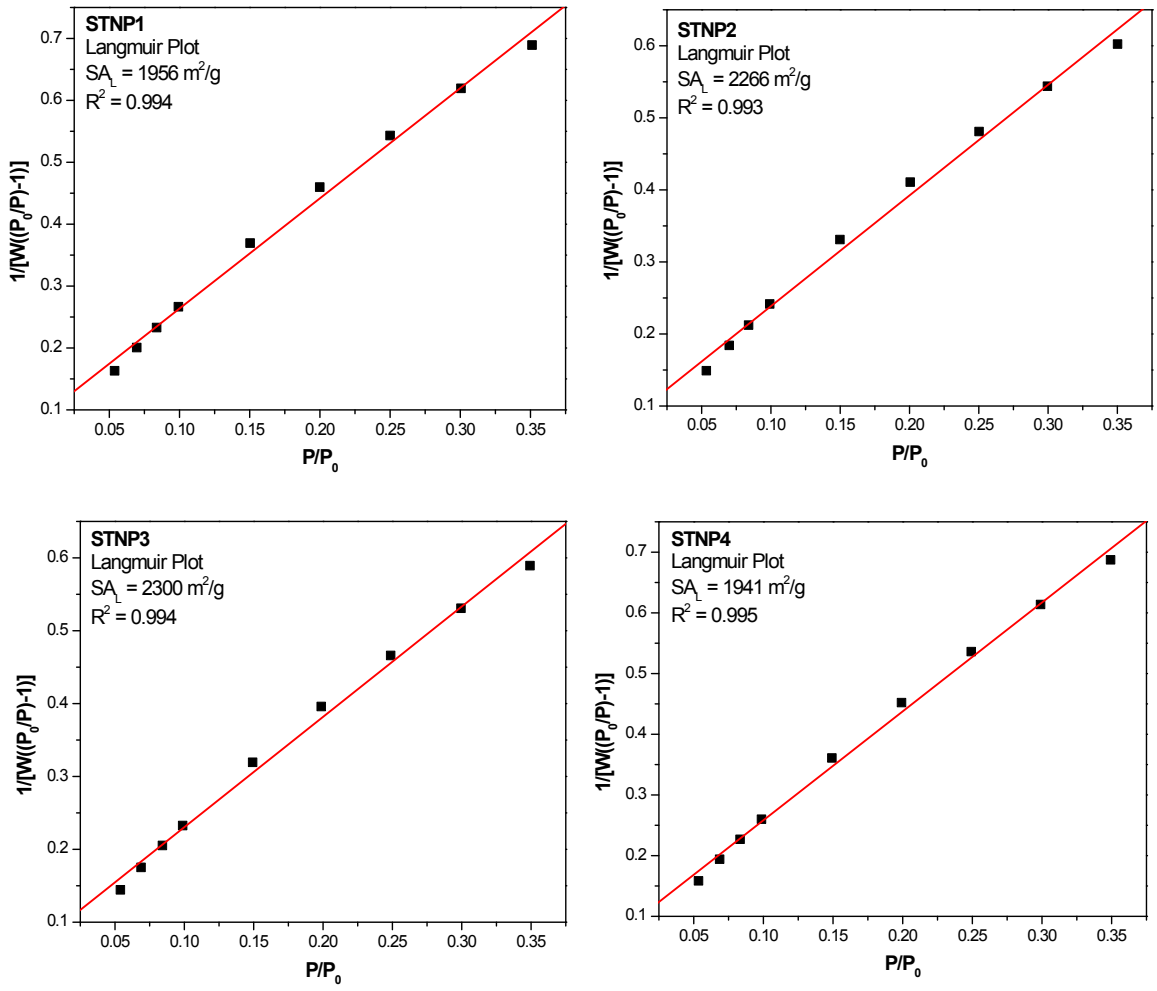


Figure S3. Langmuir plot of **STNPs**

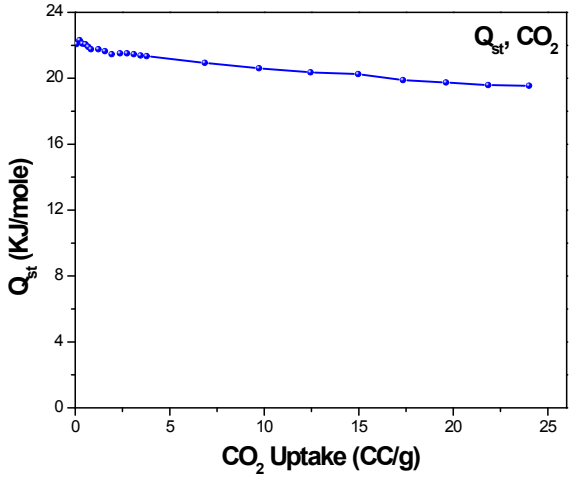


Figure S4. Q_{st} for CO_2 capture by **STNP3**

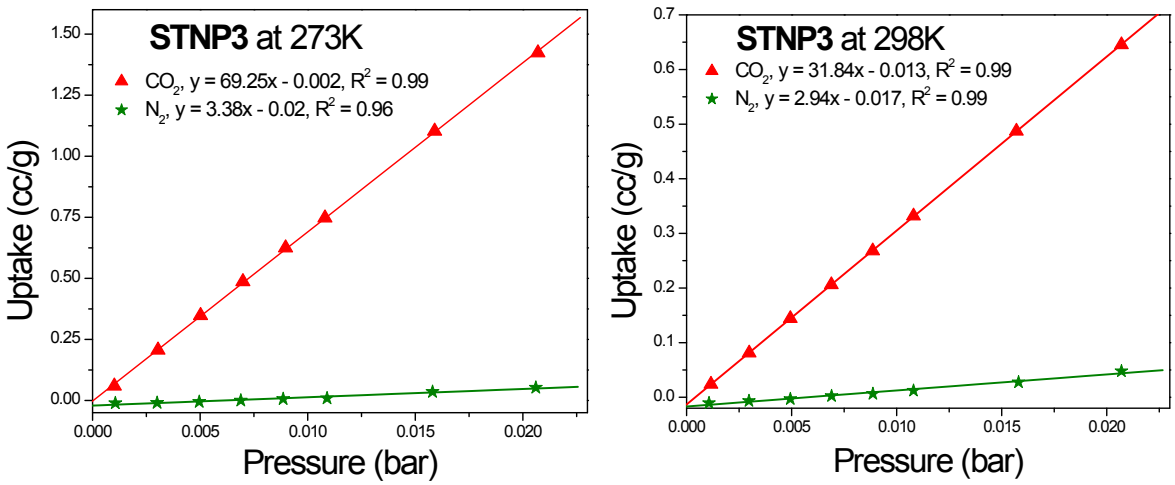


Figure S5. Initial gas uptake slopes of **STNP3**

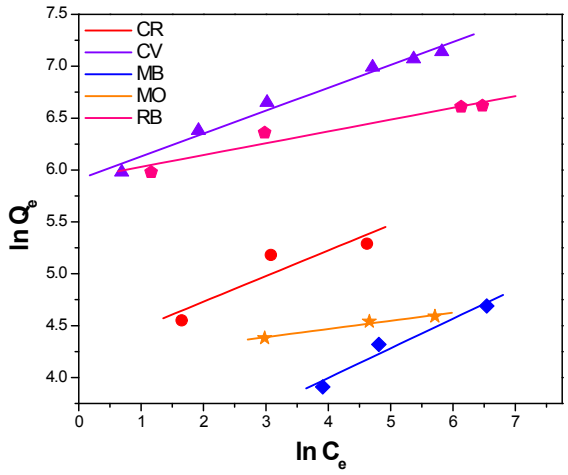
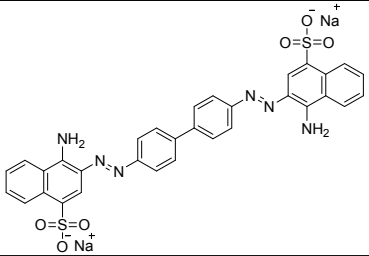


Figure S6. Linear fitting of the equilibrium data by using the Freundlich equation

Table S1 Physical and chemical properties of dyes

Dyes	Molecular structure	Molecular size (nm)	Molecular weight (g mol^{-1})	Nature (anionic/ cationic)	Absorption wavelength (nm)
CR		2.62*0.74*0.43	696	anionic	497

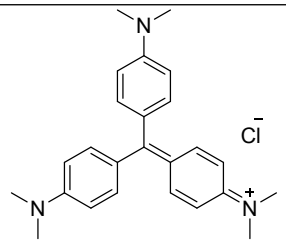
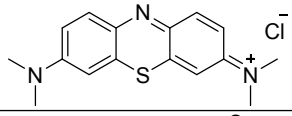
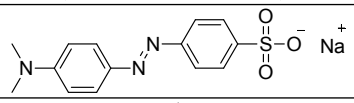
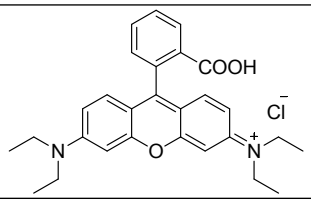
CV		1.41*1.21*0.18	407	cationic	584
MB		1.26*0.77*0.65	320	cationic	665
MO		1.31*0.55*0.18	327	anionic	464
RB		1.59*1.18*0.56	478	cationic	554

Table S2. Comparison of adsorbents of removal of CV and RB

Adsorbate	Adsorbent	Adsorption capacity (mg g-1)	Reference
CV	Magnetic nanocomposite	112	[1]
	ZSM-5 zeolite	142	[2]
	multiwalled carbon nanotubes (MWCNTs)	228	[3]
	silsesquioxane-based tetraphenylethene-linked polymers	862	[4]
	ferrocene-functionalized silsesquioxane-based polymer	1083	[5]
	STNP3	**1428**	**This work**
RB	Magnetic mesoporoussilica	105	[6]
	Fe3O4@POSS-SH	142	[7]
	fluorine-containing silsesquioxane-based hybrid polymers	416	[8]
	porous organic copolymer based on triptycene and crown ether	422	[9]

	MPSC/C	785	[10]
	hybrid phosphorus-containing porous polymers	828	[11]
	STNP3	**1000**	**This work**

References

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