Supporting Information

Linker extensions in metal-organic frameworks: A way to isoreticular networks or new topologies?

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(1) Synthesis scheme of the linker
(2) Thermal Analysis
(3) BET plot of the N_2 physisorption measurement
(4) Hydrogen storage and isosteric heat of adsorption
(5) Further structural description
(6) Linker-network correlation matrix

(1) Synthesis scheme of the linker

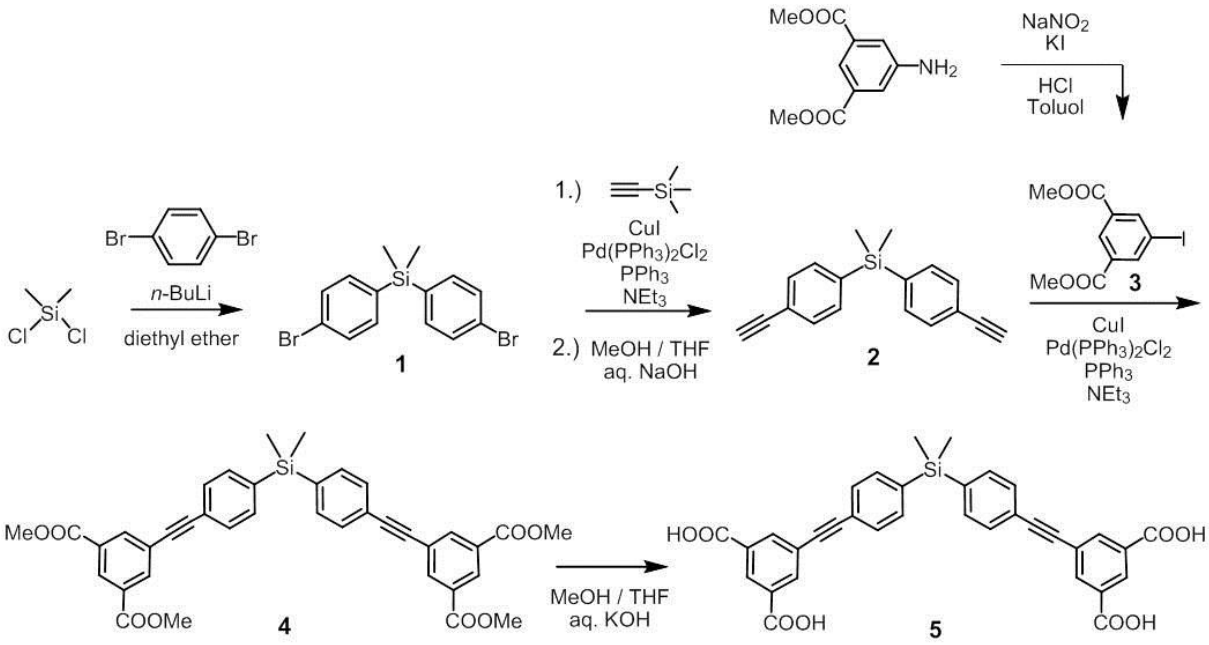


Figure S1: Synthesis scheme of the linker 5,5'-[4,4'-(dimethylsilanediyl)bis(1,4-phenyl)bis-(ethyne-1,2-diyl)]diisophthalic acid.

(2) Thermal Analysis

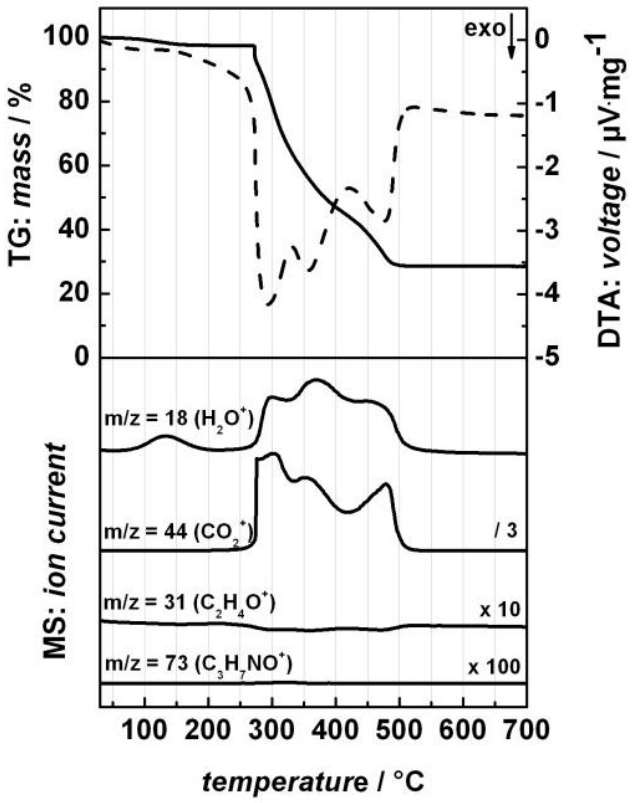
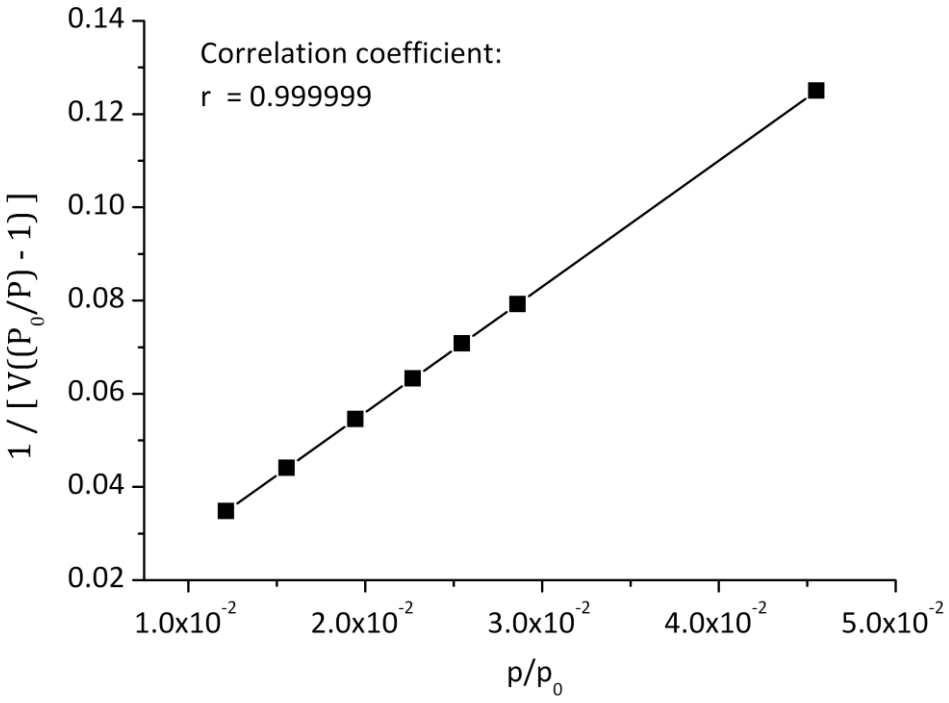


Figure S2: TG/DTA analysis in combination with mass spectrometry of UHM-7 after the solvent exchange with ethanol.

(3) BET plot of the N_2 physisorption measurement



(4) Hydrogen storage and isosteric heat of adsorption

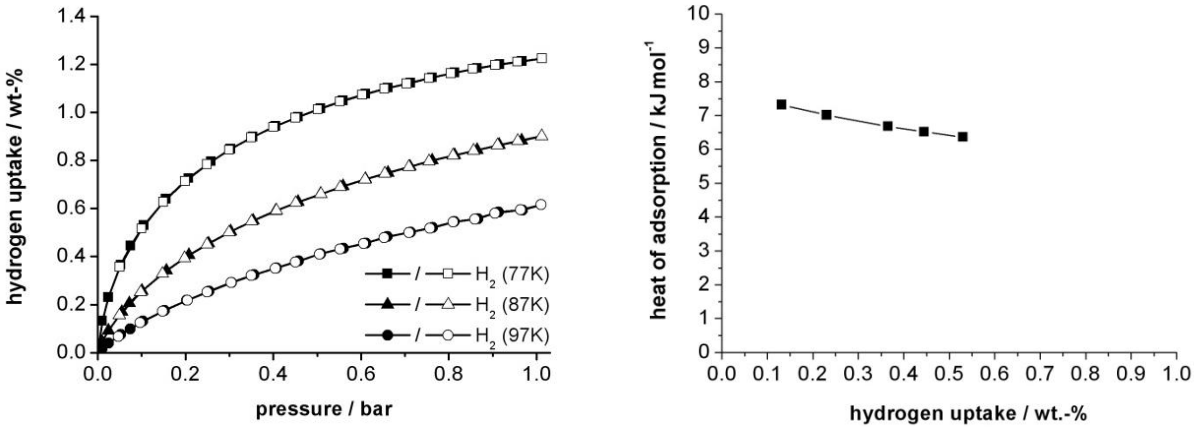


Figure S3: Hydrogen physisorption isotherms for activated UHM-7 at three different temperatures: 77 K, 87 K and 97 K (left) as well as the resulting isosteric heat of adsorption (right).

(5) Further Structural Description

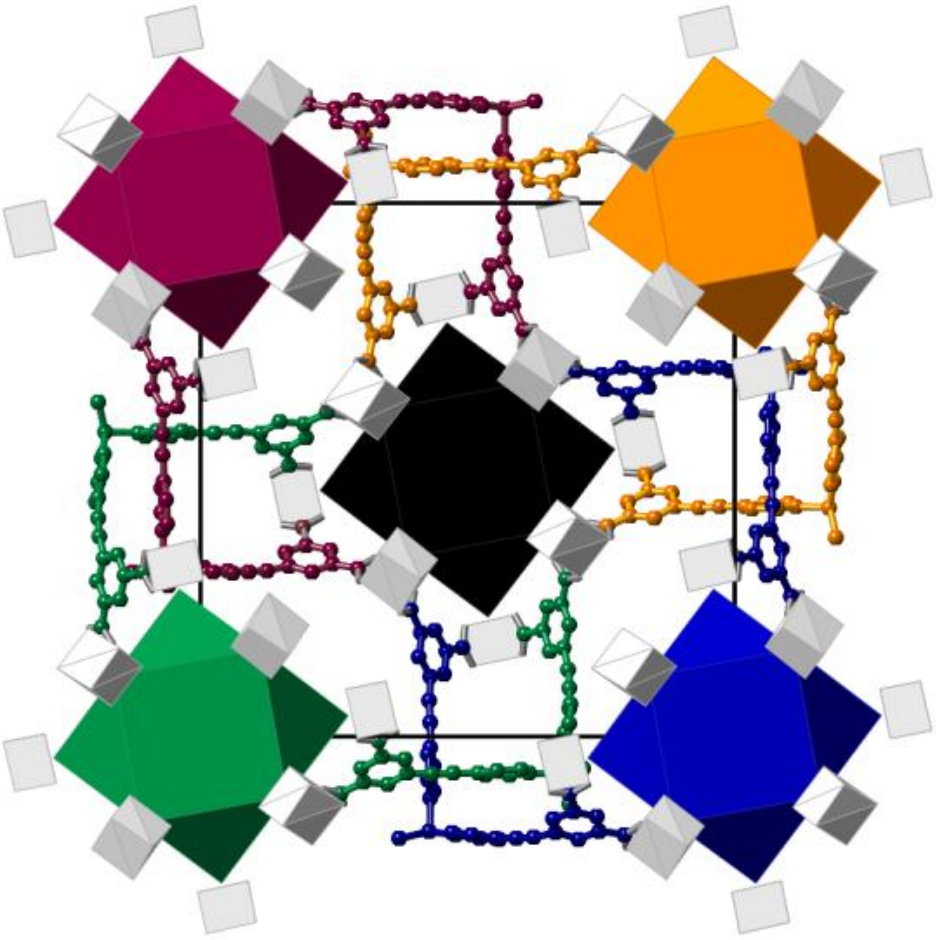
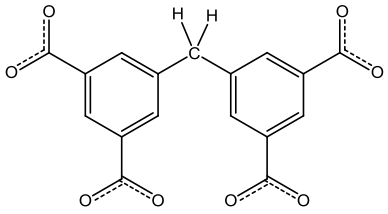
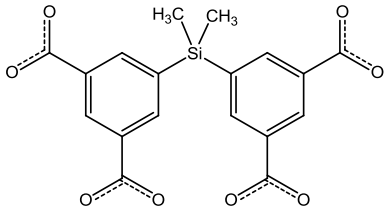
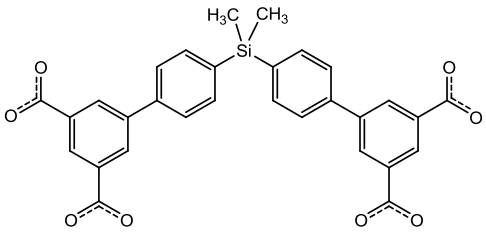
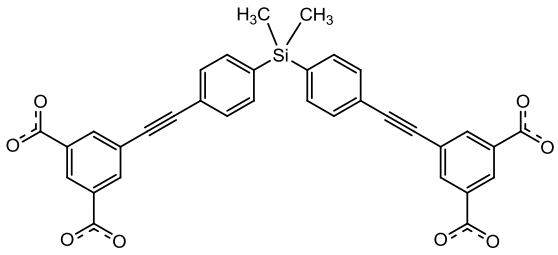


Figure S4: Connectivity scheme between the cuboctahedral cages, which are connected via linkers directly to other cuboctrahedra (displayed along the crystallographic *c*-direction): Every cuboctahedral cage is connected to the eight nearest neighbour cuboctahedral cages by 16 linkers, that means that a central cuboctahedron is connected by a pair of two linkers to every neighbouring cuboctrahedron. For clarity every cuboctahedron on the corner of the unit cell and the appending two linkers, which are connected to the central cubocahedron are marked with different colors. A grey cuboid represents the copper paddle wheel motif.

(6) Linker-network correlation matrix

PCN-12’	UHM-3 (analogously: PCN-12)
Linker  mdip 5,5'-methylene-di-isophthalate	Linker  dmsdip 5,5'-(dimethylsilanediyl)diisophthalate
conformations: C_{2v} only no interpenetration **ssa** net	conformations: C_{2v} + C_S no interpenetration **zhc** net

UHM-6 (analogously: PMOF-3)	UHM-7
Linker  sbbip 4',4''-(dimethylsilanediyl)bis(biphenyl-3,5-dicarboxylate)	Linker  dmsbphed 5,5'-[4,4'-(dimethylsilanediyl)bis(1,4-phenyl)bis(ethyne-1,2-diyl)]diisophthalate
conformations: C_S + C_2 2-fold interpenetrated **zmj** net	conformations: C_2 + C_1 no interpenetration **chs** net