## Luminescent microporous organic polymers containing

## 1,3,5-tri(4-ethenylphenyl)benzene unit constructed by Heck coupling reaction

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- Fig. S1 TG curves of LMOPs under N<sub>2</sub> (black) and air (red): (a) LMOP-1; (b) LMOP-2; (c) LMOP-3.
- Fig. S2 Scanning electron microscope images for LMOP-1 (a), LMOP-2 (b) and LMOP-3 (c) at different magnifications. The samples were sputter-coated with gold before analysis.
- **Fig. S3** Transmission electron microscopy images for LMOP-1 (a), LMOP-2 (b) and LMOP-3 (c) at different scales.
- FT-IR Fig. S4 spectra of LMOPs: the monomer and (a) 1,3,5-tri(4-iodophenyl)benzene, LMOP-1; TEPB and (b) tri(4-iodophenyl)amine, TEPB and LMOP-2: (c) 1,3,5-tetrakis(4-bromophenyl)benzene, **TEPB** and **LMOP-3**.
- Fig. S5 EDX spectra of LMOPs.
- **Fig. S6** Solubility of **TEPB** in DMF at rt (left) and 120 °C (right).
- Fig. S7 UV-Visible absorption spectra for TEPB and LMOPs.
- **Fig. S8** Luminescent spectra of **TEPB** (a), **LMOP-1** (b), **LMOP-2** (c) and **LMOP-3** (d) in solid state (black) and THF-H<sub>2</sub>O (9:1 v/v, 0.1 g/mL, red).
- Fig. S9 Luminescent spectra of LMOP-1 in solid state and suspended in

THF-H<sub>2</sub>O (9:1 v/v) with different concentrations.

- Fig. S10 The normalized luminescent intensity of LMOPs in THF/H<sub>2</sub>O (9:1 v/v, 0.1 mg/mL) upon addition of ca. 50 μM different analytes (DNCB: 2,4-dinitrochlorobenzene; DNT: 2,4-dinitrotoluene; NT: 4-nitrotoluene; NP: 4-nitrophenol).
- **Fig. S11** Luminescent spectra of **LMOP-2** in THF (0.1 mg/mL) in the presence of various amounts of picric acid (PA).
- **Fig. S12** The quenching and recovery test of **LMOP-3** in THF/H<sub>2</sub>O (9:1 v/v, 0.1 mg/mL). The blue bars represent the initial fluorescence intensity and the green bars represent the intensity upon addition of PA ([PA] = 25  $\mu$ M).
- **Fig. S13** The luminescent spectra of **LMOP-3** (THF/H<sub>2</sub>O, 9:1 v/v, 0.1 mg/L) in each cycle: initial, black;  $[PA] = 25 \mu M$ , red;  $[PA] = 50 \mu M$ , blue.
- Fig. S14 Plots of I<sub>0</sub>/I–1 versus PA concentration in THF/H2O (9:1 v/v) for TEPB (a), LMOP-1 (b), LMOP-2 (c) and LMOP-3 (d) in the low concentration.
- **Fig. S15** <sup>1</sup>H NMR of 1,3,5-tri(4-formylphenyl)benzene.
- **Fig. S16** <sup>1</sup>H NMR of 1,3,5-tri(4-ethenylphenyl)benzene.
- **Fig. S17** <sup>13</sup>C NMR of 1,3,5-tri(4-ethenylphenyl)benzene.
- Table S1EDX analyses of the LMOPs.
- Table S2Element analyses of LMOPs.
- Table S3Porous properties of LMOPs.



Fig. S1 TG curves of LMOPs under N<sub>2</sub> (black) and air (red): (a) LMOP-1; (b) LMOP-2; (c) LMOP-3.



**Fig. S2** Scanning electron microscope images for **LMOP-1** (a), **LMOP-2** (b) and **LMOP-3** (c) at different magnifications. The samples were sputter-coated with gold before analysis.



Fig. S3 Transmission electron microscopy images for LMOP-1 (a), LMOP-2 (b) and

**LMOP-3** (c) at different scales.



Fig. S4 FT-IR spectra of the monomer and LMOPs: (a) 1,3,5-tri(4-iodophenyl)benzene, TEPB and LMOP-1; (b) tri(4-iodophenyl)amine, TEPB and LMOP-2; (c) 1,3,5-tetrakis(4-bromophenyl)benzene, TEPB and LMOP-3.



Fig. S5 EDX spectra of LMOPs.



Fig. S6 Solubility of TEPB in DMF at rt (left) and 120  $^{\circ}$ C (right).



Fig. S8 Luminescent spectra of TEPB (a), LMOP-1 (b), LMOP-2 (c) and LMOP-3

(d) in solid state (black) and THF-H<sub>2</sub>O (9:1 v/v, 0.1 g/mL, red).



Fig. S9 Luminescent spectra of LMOP-1 in solid state and suspended in THF-H<sub>2</sub>O (9:1 v/v) with different concentrations.



Fig. S10 The normalized luminescent intensity of LMOPs in THF/H<sub>2</sub>O (9:1 v/v, 0.1 of mg/mL) addition 50 μΜ different analytes (DNCB: upon ca. 2,4-dinitrochlorobenzene; DNT: 2,4-dinitrotoluene; NT: 4-nitrotoluene; NP: 4-nitrophenol).



Fig. S11 Luminescent spectra of LMOP-2 in THF (0.1 mg/mL) in the presence of

various amounts of picric acid (PA).



**Fig. S12** The quenching and recovery test of **LMOP-3** in THF/H<sub>2</sub>O (9:1 v/v, 0.1 mg/mL). The blue bars represent the initial fluorescence intensity and the green bars represent the intensity upon addition of PA ([PA] = 25  $\mu$ M).



Fig. S13 The luminescent spectra of LMOP-3 (THF/H<sub>2</sub>O, 9:1 v/v, 0.1 mg/L) in each

cycle: initial, black;  $[PA] = 25 \ \mu M$ , red;  $[PA] = 50 \ \mu M$ , blue.



Fig. S14 Plots of  $I_0/I-1$  versus PA concentration in THF/H2O (9:1 v/v) for TEPB (a), LMOP-1 (b), LMOP-2 (c) and LMOP-3 (d) in the low concentration.









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Fig. S17 13C NMR of 1,3,5-tri(4-ethenylphenyl)benzene.

	wt. %				at. %			
LMOPs	С	Ι	Br	Pd	С	Ι	Br	Pd
LMOP-1	93.41	3.39	-	0.31	98.85	0.34	-	0.04
LMOP-1	91.39	4.39	-	0.72	98.53	0.45	-	0.09
LMOP-2	88.97	6.97	-	0.51	98.26	0.73	-	0.06
LMOP-2	90.20	4.32	-	0.41	97.94	0.44	-	0.05
LMOP-3	93.35	-	2.87	1.33	98.70	-	0.46	0.16
LMOP-3	93.44	-	3.10	1.26	98.68	-	0.49	0.15

## Table S1 EDX analyses of the LMOPs.

Table S2 Element analyses of LMOPs.

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LMOPs	С	Н	C/H (exp)	C/H (theoretical)
LMOP-1	84.39	4.778	17.66	18.00
LMOP-2	77.40	4.354	17.78	17.45
LMOP-3	87.82	5.107	17.20	17.72

Table S3 Porous properties of LMOPs.

LMOPs	$S_{\rm BET}/m^2 {\rm g}^{-1}$	$S_{\text{Langmuir}}/\text{m}^2 \text{g}^{-1}$	$S_{\rm micro}/{ m m}^2~{ m g}^{-1}$	$V_{\text{total}}^{a}/\text{m}^3 \text{g}^{-1}$	$V_{\rm micro}^{\ \ b}/{\rm m}^3~{\rm g}^{-1}$	Pore width <sup>c</sup>
LMOP-1	411	550	236	0.249	0.109	0.68
LMOP-2	391	525	214	0.252	0.098	0.68
LMOP-3a	467	625	279	0.294	0.128	0.66
LMOP-3	791	1056	499	0.450	0.230	0.66

<sup>*a*</sup> Total volume at  $P/P_o = 0.97$ . <sup>*b*</sup> The micropore volume calculated from *t*-plot method.

<sup>c</sup> Calculated by the Horvath-Kawazoe method.