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Electronic Supplementary Information

Porphyrin-Layered Double Hydroxides/Polymer Composites as Novel Ecological Photoactive Surfaces

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Table S1 Porphyrin-LDH reference materials: M^{2+}/Al^{3+} molar ratios (R_{exp}) of the hydroxide layers and refined cell parameters.

Samples	R_{exp} [a]	a/Å [c]	c/Å [c]	d_{003}/Å
PdTPPC-Zn_2Al	-	3.1	68.6	22.9
PdTPPC-Zn_2Al^H	2.04	3.0672(3)	68.38(1)	22.8
PdTPPC-Zn_3Al	2.83	3.1	68.0	22.6
PdTPPC-Zn_3Al^H	[b]	3.0685(4)	67.51(2)	22.5
PdTPPC–Zn_4Al	3.72	3.1	67.6	22.5
PdTPPC-Zn_4Al^H	[b]	3.0707(5)	67.61(2)	22.5
ZnTPPS-Zn_4Al^H	[b]	3.0667(2)	69.047(4)	23.0
PdTPPC–Mg_2Al	-	-	65.1	21.7
PdTPPC-Mg_2Al^H	-	3.042(1)	67.59(1)	22.5
TPPS-Mg_2Al	-	3.0	65.1	21.7
TPPS-Mg_2Al^H	1.73	3.0351(2)	69.105(5)	23.0

[a] Deduced from elemental analysis; [b] Owing to the formation of ZnO during the post-synthesis hydrothermal treatment, it was not possible to determine R_{exp}; [c] Cell parameters were determined from the peak profile analysis of XRD data for hydrothermally treated samples and from the positions of the *00l* and *110* diffraction lines for as-prepared samples.

Figure S1 Powder XRD patterns of porphyrin-LDH reference materials aged for 24 h (as-prepared samples) followed by the hydrothermal treatment (labeled with superscript H).

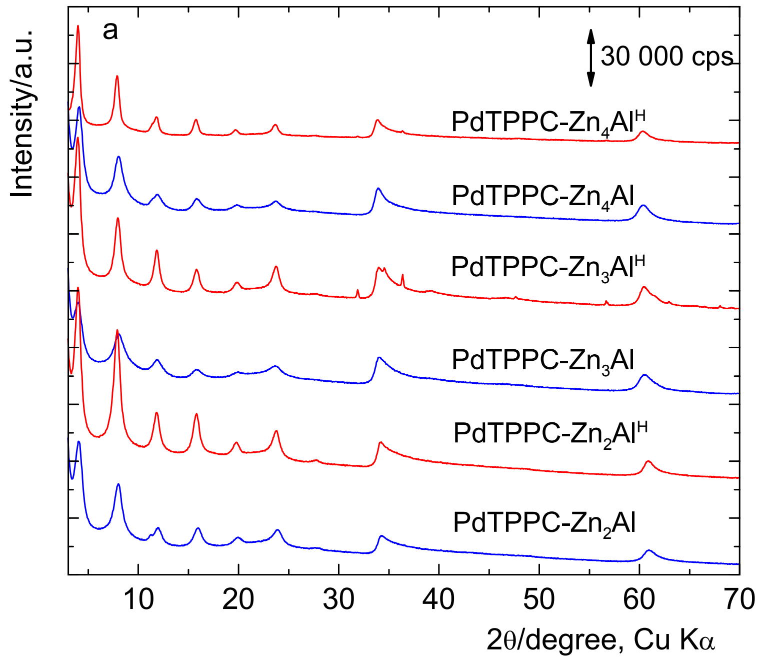
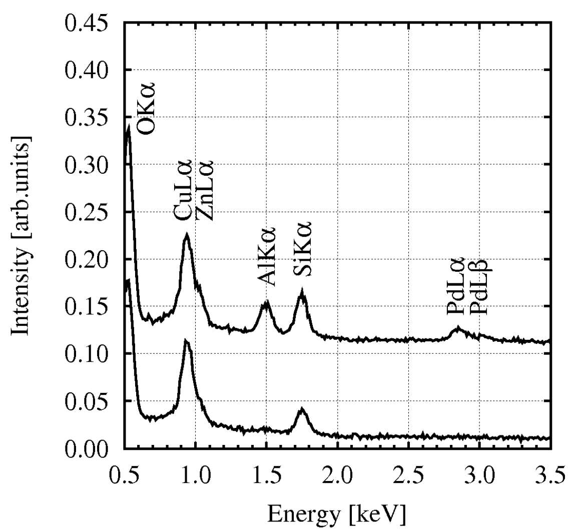
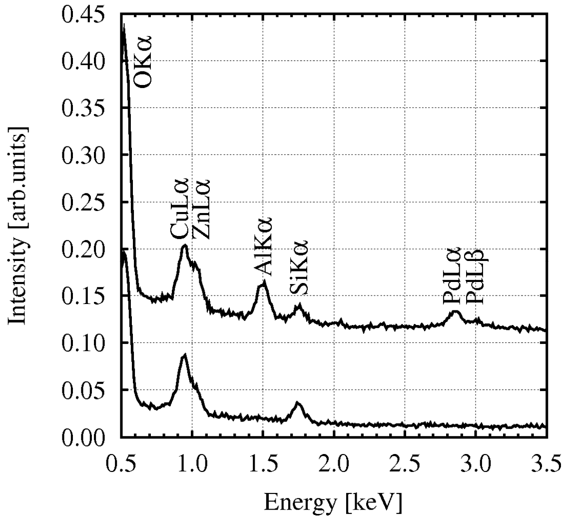


Figure S2 TEM/EDX spectra of (a) samples B1, (b) B2 and (c) B5. In each image, the upper spectrum was measured from dark areas (flakes) and the lower spectrum from light areas (matrix). Peaks corresponding to Cu come from a microscopic support copper grid; peaks of Si are probably due to a glassware used for the filler synthesis in basic media; oxygen peak is also present.

(a)



(b)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0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Intensity [arb.units]
Energy [keV]
OKα
CuLα
ZnLα
AlKα
SiKα
PdLα
PdLβ

(c)

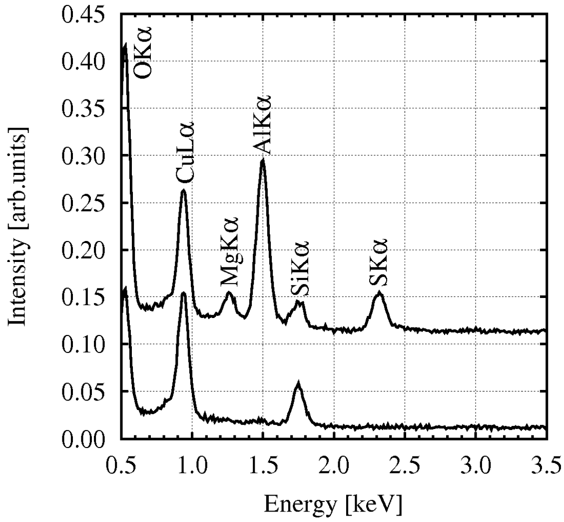
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Intensity [arb.units]
Energy [keV]
OKα
CuLα
MgKα
AlKα
SiKα
SKα

Figure S3 Singlet oxygen luminescence signal generated by the PdTPPC-Zn_2Al^H reference upon 425 nm excitation (~0.9 mJ/pulse, pulse width ~ 28 ns, oxygen atmosphere, recorded at 1270 nm). The smoothed line (red) is a least squares fit and the quality of the fit is shown by residuals as the difference between the experimental curve and the fit (green).