

## Electronic Supplementary Information

*for*

# **A new supramolecular polyhedral oligomeric silsesquioxanes (POSS)-porphyrin nano hybrid: synthesis and spectroscopic characterization**

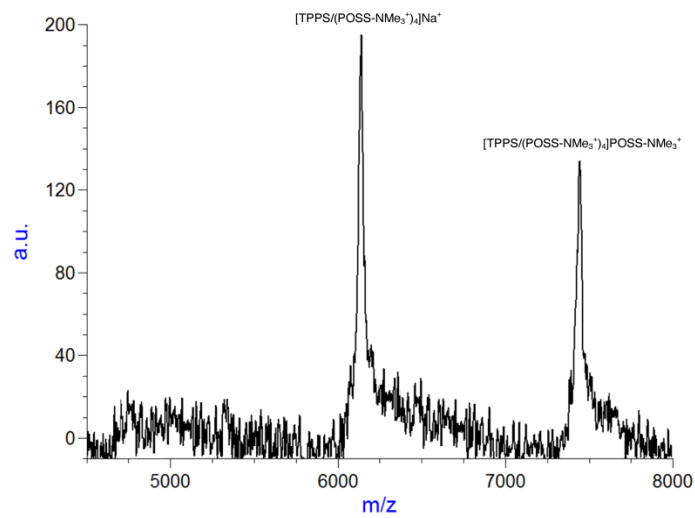
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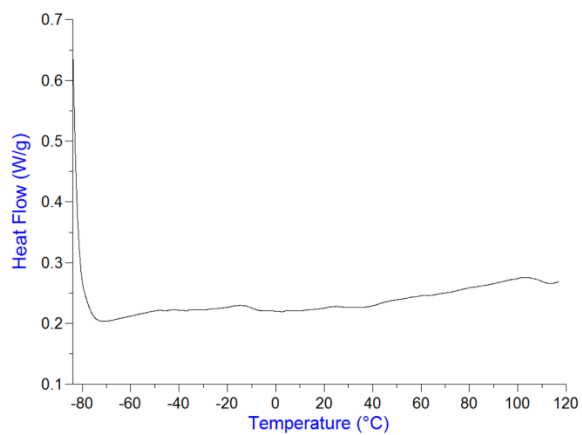
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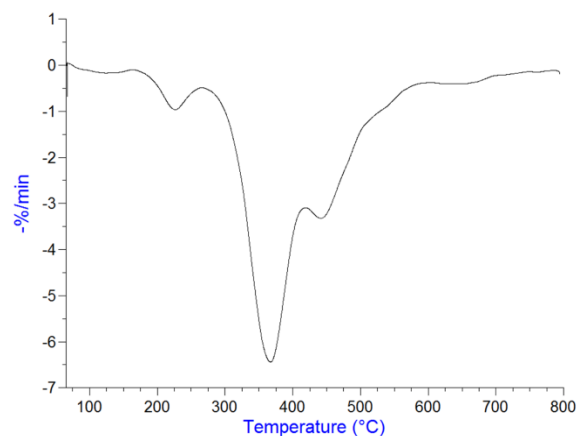
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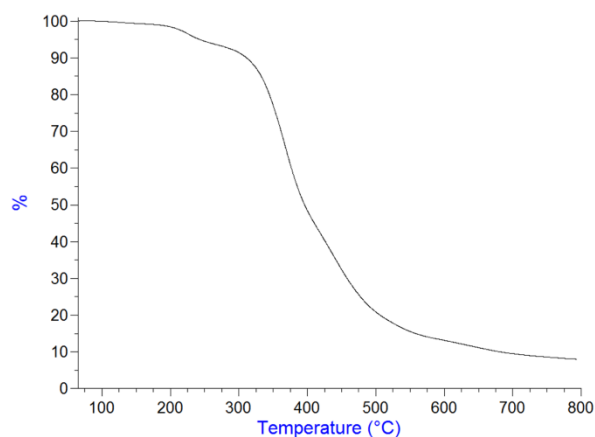
**Figure S1.** MALDI-TOF Matrix-assisted laser desorption/ionization-time of flight mass spectrum of TPPS@POSS adduct



**Figure S2.** DSC: Differential scanning calorimetry trace for TPPS@POSS adduct



**Figure S3** DTG: Derivative thermogravimetric curve of TPPS@POSS adduct, under nitrogen flow



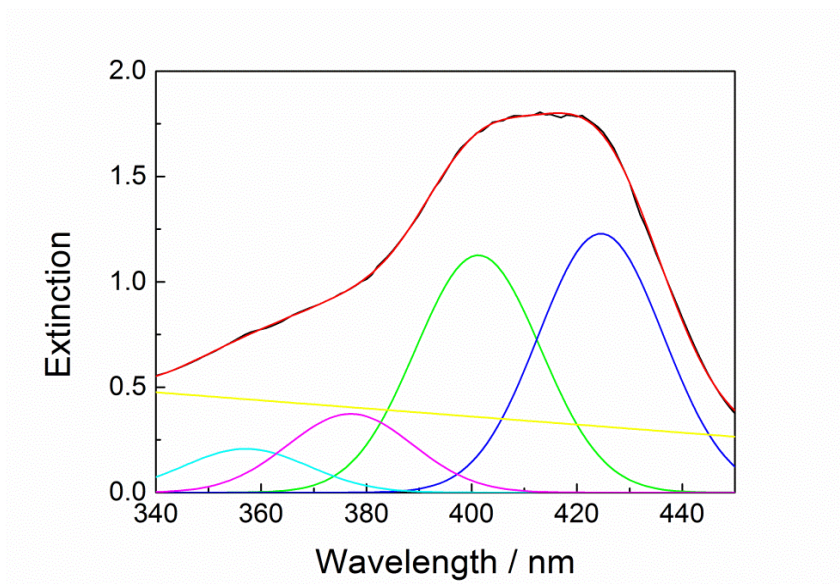
**Figure S4.** TGA: Thermogravimetric trace of TPPS@POSS adduct, under nitrogen flow.

Table 1 Thermal properties of Porph-POSS<sub>n</sub>

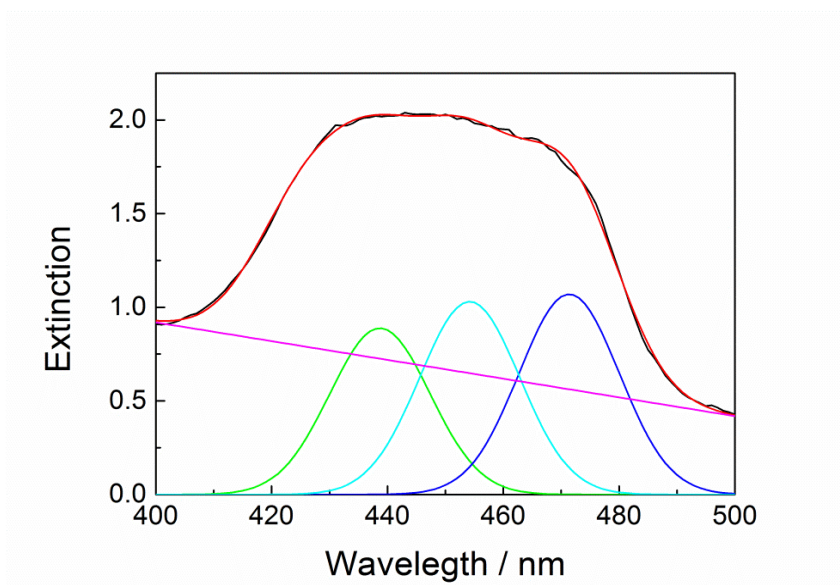
| $T_g/^\circ\text{C}$ | $T_{\text{onset}}/^\circ\text{C}$<br>(I step) | $T_{\text{onset}}/^\circ\text{C}$<br>(II step) | $T_{\text{max}}^a/^\circ\text{C}$<br>(II step) | Residue <sup>b</sup> /% |
|----------------------|---|--|--|-------------------------|
| -                    | 208.1   | 303.9  | 366.2  | 8.0                     |

<sup>a</sup>  $T_{\text{max}}$ : temperature of maximum rate of degradation.

<sup>b</sup> Residue at 800 °C under N<sub>2</sub> flow.



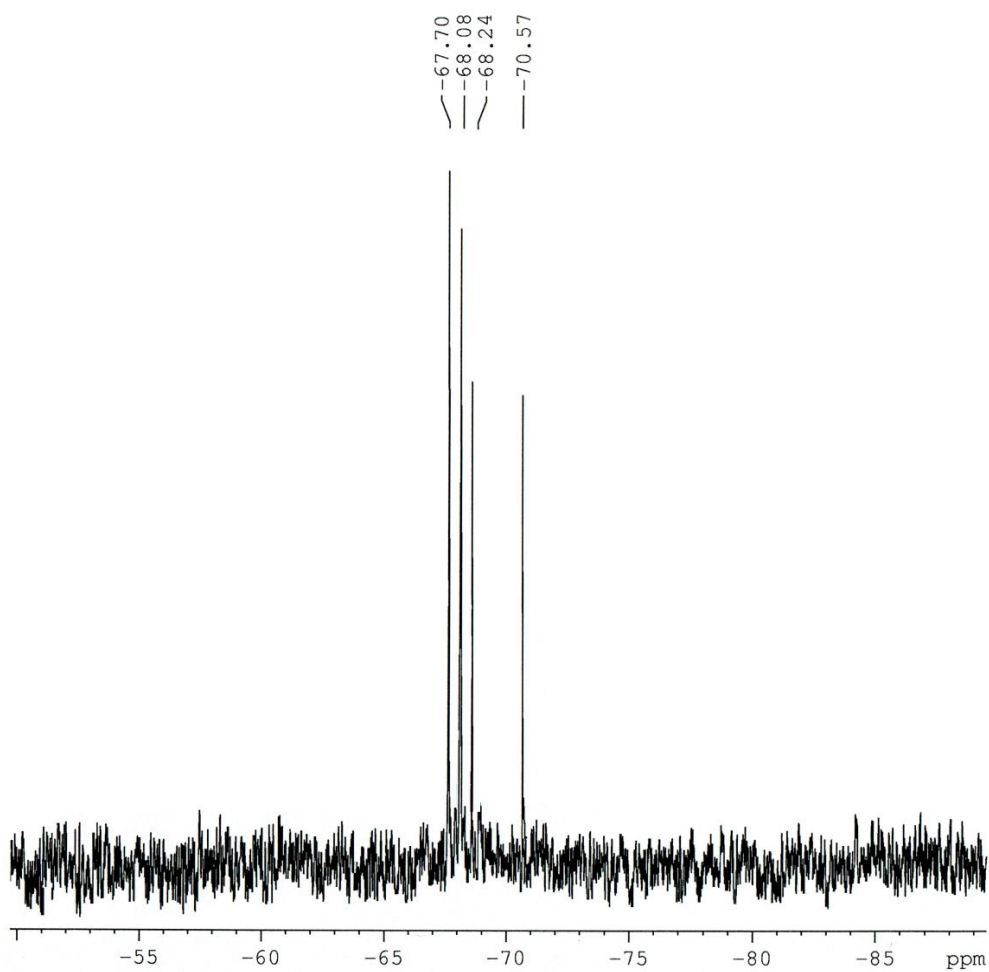
**Figure S5.** Extinction spectra of TPPS@POSS adduct on optical windows and relative deconvolution.



**Figure S6.** Extinction spectra of TPPS@POSS adduct on optical windows exposed to HCl vapors and relative deconvolution.



**Figure S7** TPPS@POSS EDX analysis. Overlapping zones (Yellow for Si and purple for S) look blurred.



**Figure S8** <sup>29</sup>Si NMR spectrum of TPPS@POSS in CDCl<sub>3</sub>