

## Supporting Information

# Photochemical synthesis of pyrene perfluoroalkyl derivatives and their embedding in a polymethylmethacrylate matrix. A spectroscopic and structural study.

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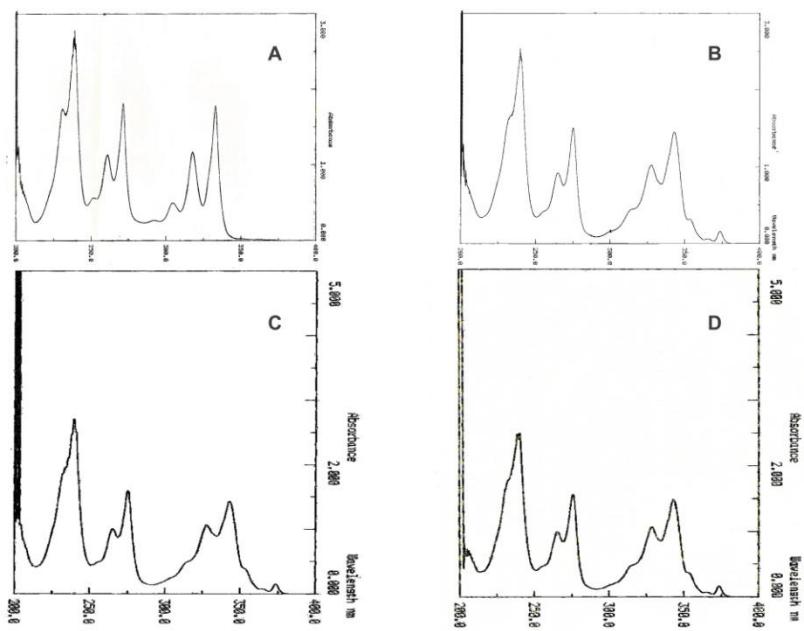
b Istituto EuroMediterraneo di Scienza e Tecnologia (IEMEST), Via Emerico Amari 123, 90139, Palermo, Italy.

c Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM), UdR di Palermo, Viale delle Scienze – Parco d’Orleans II, Ed. 17, I-90128 Palermo, Italy.

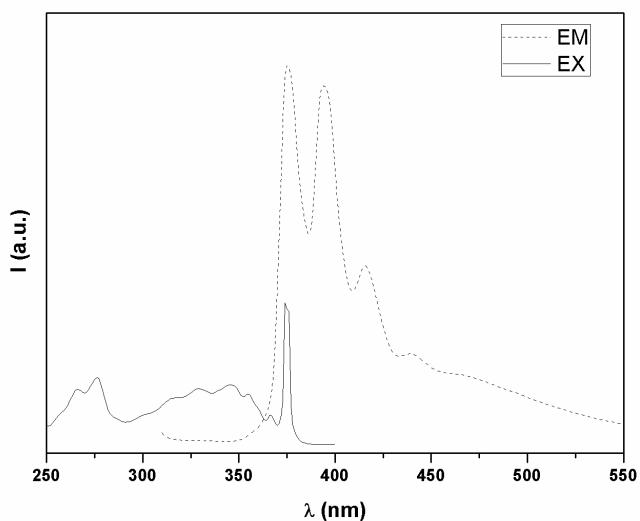
d Centro Grandi Apparecchiature-UniNetLab, Università di Palermo, Via F. Marini 14, I-90128 Palermo, Italy.

### Contents

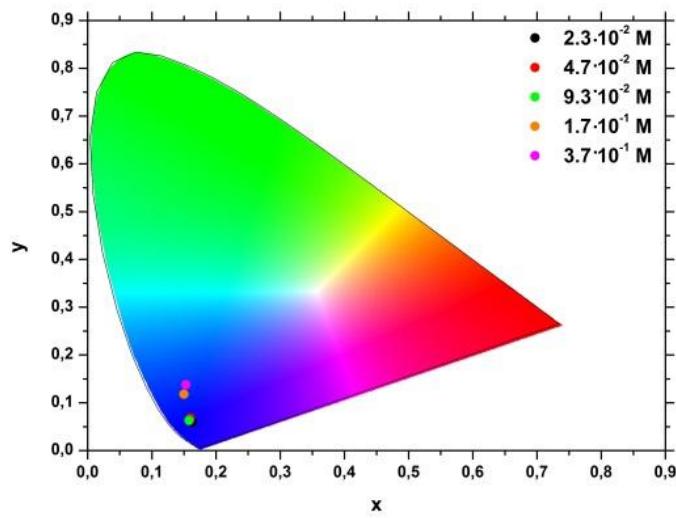
<b>UV Experiments.....</b>	<b>S1</b>
<b>Photoluminescence Experiments.....</b>	<b>S2</b>
<b>Chromaticity coordinates.....</b>	<b>S3-S6</b>
<b>SAXS Experiments.....</b>	<b>S7</b>
<b>TEM Experiments.....</b>	<b>S8-S10</b>
<b>TGA Analysis.....</b>	<b>S11</b>



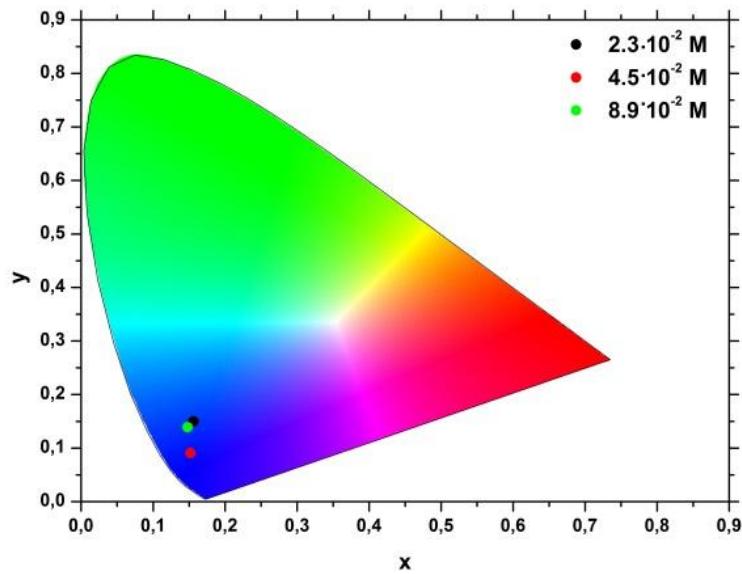
**Figure S1.** UV spectra for pyrene **1** (A) and its derivatives **2a** (B), **2b** (C), **2c** (D) in CH<sub>3</sub>OH solutions.



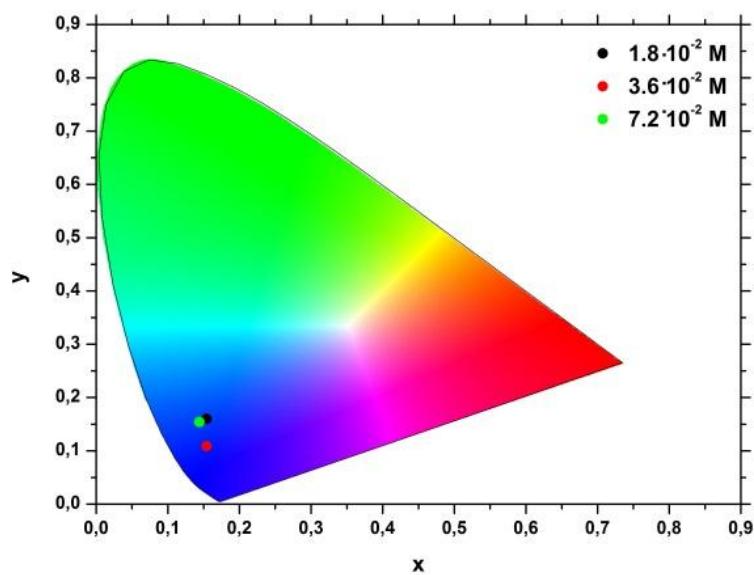
**Figure S2.** Excitation and overlapped Emission spectra for compound **2a** in CH<sub>3</sub>OH solution.



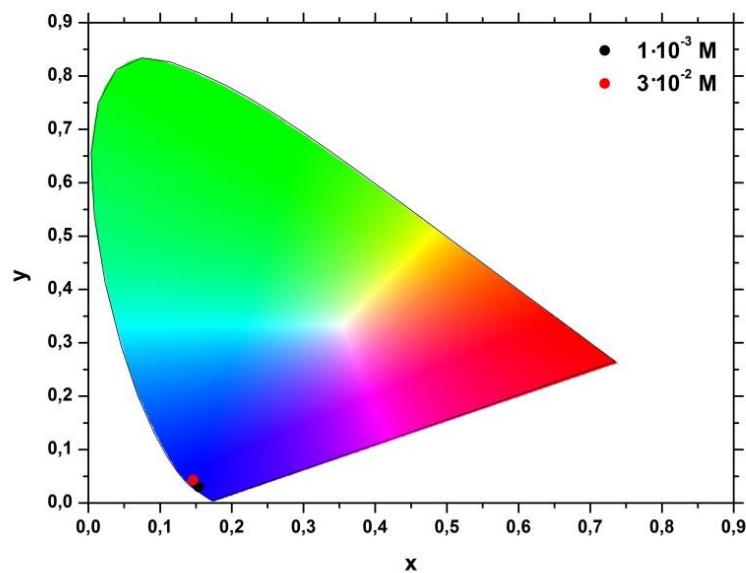
**Figure S3.** Chromaticity coordinates of the **1/PMMA** composites.



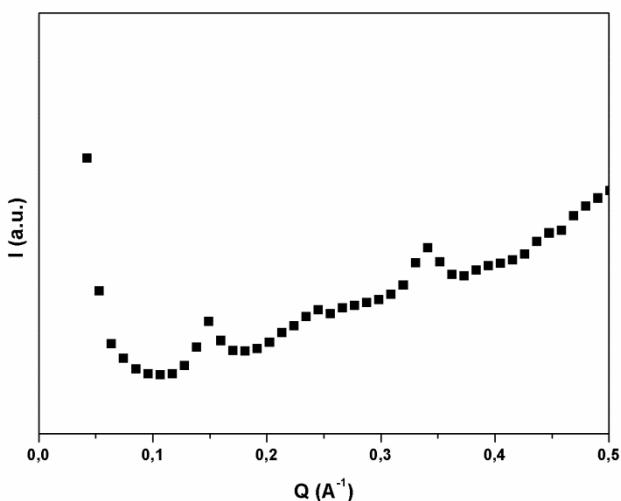
**Figure S4.** Chromaticity coordinates of the **2a/PMMA** composites.



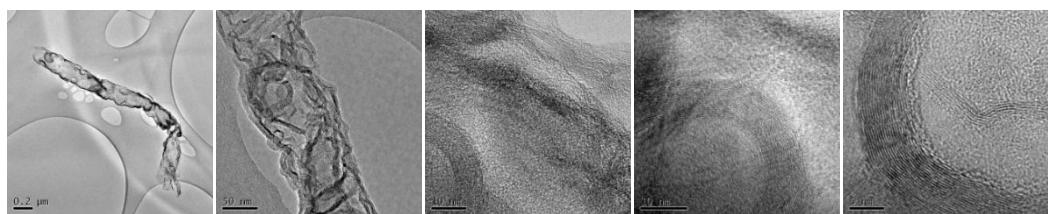
**Figure S5.** Chromaticity coordinates of the **2b/PMMA** composites.



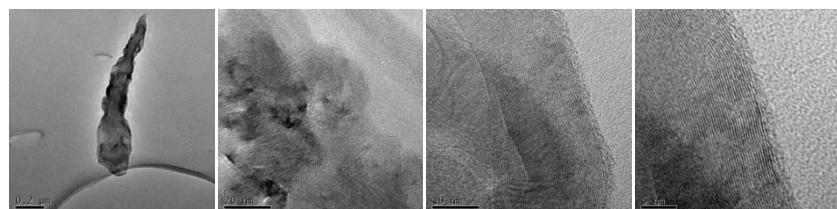
**Figure S6.** Chromaticity coordinates of the **2d/PMMA** composites.



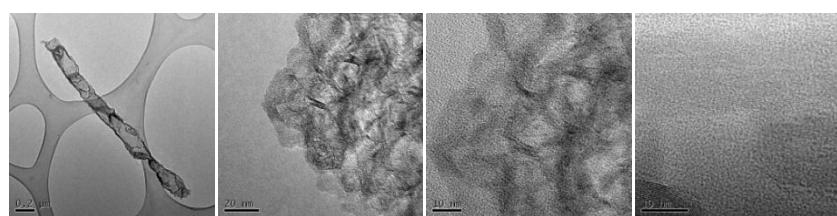
**Figure S7.** SAXS data for sample **2c/PMMA**  $6.4 \times 10^{-2}$  M.



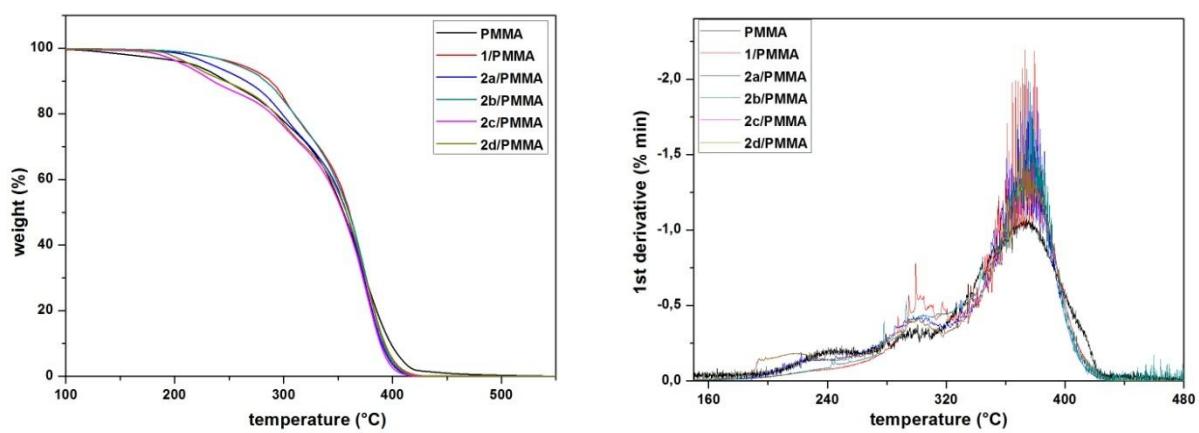
**Figure S8.** TEM micrographs for **1/PMMA** (1%) at (from left to right) 8000X, 60000X, 300000X, 400000X, 600000X respectively.



**Figure S9.** TEM micrographs for **2b/PMMA** (2%) at (from left to right) 120000X, 200000X, 400000X, 600000X respectively.



**Figure S10.** TEM micrographs for **2c/PMMA** (4%) at (from left to right) 8000X, 150000X, 250000X, 400000X respectively.



**Figure S11.** TGA and DTG curves of **PMMA**,  $2.33 \cdot 10^{-2} \text{M}$  **1/PMMA**,  $2.3 \cdot 10^{-2} \text{M}$  **2a/PMMA**,  $3.6 \cdot 10^{-2} \text{M}$  **2b/PMMA**,  $3 \cdot 10^{-2} \text{M}$  **2c/PMMA** and  $3 \cdot 10^{-2} \text{M}$  **2d/PMMA**.