

# Nanotubule inclusion in the channels formed by a six-fold interpenetrated, triperiodic framework

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## Supporting Information

### Experimental details

#### Synthesis

Synthesis of L. All chemicals were purchased from TCI Co. and used without further purification. The <sup>1</sup>H NMR spectrum (Fig. S1) was recorded using a JEOL 400 MHz instrument in D<sub>2</sub>O solvent.

LH<sub>2</sub>(PF<sub>6</sub>)<sub>2</sub> was prepared by slight modifications of the method reported in the literature.<sup>1</sup> 1,4-Bis(bromomethyl)benzene (2.6 g, 10 mmol) and ethyl isonicotinate (3.3 g, 22 mmol) were dissolved in acetonitrile (50 mL) and heated under reflux for 48 h, then cooled to room temperature. The solid was filtered and washed with acetonitrile, then dissolved in 5% HCl (50 mL) and refluxed for 5 h. The white product formed was filtered and washed with a small amount of cold water, then dissolved in a minimum amount of water before adding NH<sub>4</sub>PF<sub>6</sub> until no further precipitate was formed. The resulting white precipitate was filtered and recrystallized three times before being filtered again, washed with a small amount of cold water, and dried under vacuum. Yield, 48%. <sup>1</sup>H NMR (400 MHz) in D<sub>2</sub>O: δ 8.94 (d, 4H), 8.31 (d, 4H), 7.46 (s, 4H), 5.81 (s, 4H).

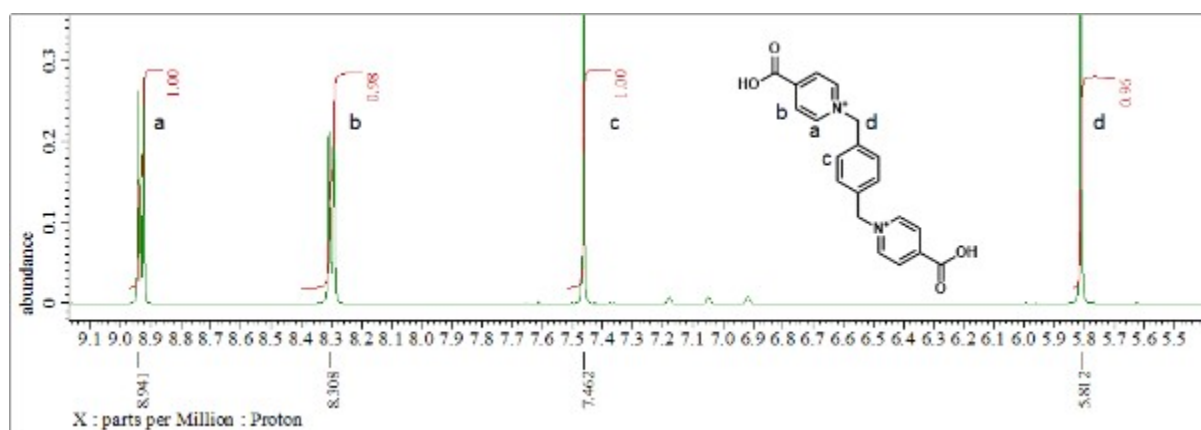
Synthesis of complex **1**. Caution! *Uranium is a radioactive and chemically toxic element, and uranium-containing samples must be handled with suitable care and protection. Small quantities of reagents and solvents were employed to minimize any potential hazards arising both from the presence of uranium and the use of pressurized vessels for the syntheses.*

[UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]·4H<sub>2</sub>O (RP Normapur, 99%) was purchased from Prolabo and tricarballylic acid was from Alfa-Aesar. The elemental analysis of **1** was made by MEDAC Ltd.

LH<sub>2</sub>(PF<sub>6</sub>)<sub>2</sub> (26 mg, 0.04 mmol), H<sub>3</sub>tca (9 mg, 0.05 mmol), [UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>(H<sub>2</sub>O)<sub>2</sub>]·4H<sub>2</sub>O (25 mg, 0.05 mmol), *N,N*-dimethylacetamide (0.2 mL), and demineralized water (0.7 mL) were placed in a 10 mL tightly closed glass vessel (Pyrex<sup>®</sup> culture tube with a SVL15 stopper and a Teflon-coated seal, provided by VWR) and heated at 140 °C under autogenous pressure in a sand bath (Harry Gestigkeit ST72), giving light yellow crystals of complex **1** within three days (19 mg, 68%). The crystals were grown in the hot, pressurized solution (and not as a result of a final return to ambient conditions). Anal. Calcd for C<sub>64</sub>H<sub>64</sub>N<sub>6</sub>O<sub>44</sub>U<sub>5</sub>: C, 27.34; H, 2.29; N, 2.99. Found: C, 27.16; H, 2.38; N, 3.04%.

### **Luminescence measurements**

The emission spectrum of **1** was recorded on a solid sample using an Edinburgh Instruments FS5 spectrofluorimeter equipped with a 150 W CW ozone-free xenon arc lamp, dual-grating excitation and emission monochromators (2.1 nm/mm dispersion; 1200 grooves/mm) and an R928P photomultiplier detector. The powdered compound was pressed to the wall of a quartz tube, and the measurement was performed using the right-angle mode in the SC-05 cassette. An excitation wavelength of 420 nm was used and the emission was monitored between 450 and 600 nm. Deconvolution of the spectrum was made with the Origin software. The quantum yield measurement was performed by using a Hamamatsu Quantaurus C11347 absolute photoluminescence quantum yield spectrometer and exciting the sample between 300 and 400 nm.



**Fig. S1.**  $^1\text{H}$  NMR spectrum of L.

### Reference

1. F. Huang, C. Slebodnick, E. J. Mahan and H. W. Gibson, *Tetrahedron*, 2007, **63**, 2875.