Title: Grating of single Lu@C$_{82}$ molecules using supramolecular network

Supporting information:

Characterization of the Lu@C$_{82}$ molecules:

The purity of the Lu@C$_{82}$ molecules has been checked by mass spectrometry and by UV-Vis-NIR absorption.
Fig.1 shows the positive mass spectrum on the isolated Lu@C$_{82}$, HPLC fraction.
The corresponding negative mass spectrum is presented Fig.2.
The mass spectra were taken with the MALDI technique without any matrix.
Fig.3 shows UV-Vis-NIR absorption spectra for isolated Y@C$_{82}$, La@C$_{82}$ and Lu@C$_{82}$ for comparison. The fullerenes were in suspension in CS$_2$ solution during the recording of the UV-vis-NIR spectra.

Fig.1: Positive mass spectrum on the isolated Lu@C$_{82}$
Procedure to form the Lu@C82-PTCDI-melamine network:

In a first step, PTCDI molecules have been sublimated onto a room temperature gold substrate. In a second step, the melamine molecules have been sublimated onto this room temperature substrate. In a third step, the gold substrate supporting the PTCDI and melamine molecules has been annealed at 150°C for 10 h to form the PTCDI-melamine supramolecular network. Once the substrate has been cooled down to room temperature, the Lu@C82 molecules have been sublimated. No post annealing has been performed after this step.
Procedure to form the Lu@C82 close-packed domains:

The Lu@C_{82} molecules have been sublimated onto a room temperature gold substrate. No post annealing has been performed after this step.