Supporting Information

Experimental Procedure: The STM studies have been carried out with a home built beetle type STM operating at the solid-liquid interface. STM tips have been prepared from a 0.25 mm thick Pt/Ir (80%,20%) wire by mechanical cutting. Almost saturated solutions of HBC-star in 1,2,4 trichlorobenzene and 1-phenyloctane respectively have been applied to the basal plane of a freshly cleaved highly oriented pyrolitic graphite (HOPG) substrate. The lattice of the underlying HOPG has been visualized during the measurements by simply changing the tunneling parameters; this allowed calibration of the piezo in the xy plane in-situ. Unit cells were averaged over several images after their correction for the piezo drift (using SPIP Scanning Probe Image Processor, Version 1.720, Image Metrology ApS, Lyngby, Denmark). STM current images with a sub-molecular resolution have been recorded using scan rates of ~20-100 lines/sec.

Packing model for the 2D arrangement observed for HBC-star at the 1-phenyloctane/HOPG-interface.