

## Electronic Supplementary Information for

# On-surface synthesis of superlattice arrays of ultralong graphene nanoribbons

César Moreno, Markos Paradinas, Manuel Vilas,  
Mirko Panighel, Gustavo Ceballos, Diego Peña, and Aitor Mugarza

Correspondence to: [cesar.moreno@icn2.cat](mailto:cesar.moreno@icn2.cat); [diego.pena@usc.es](mailto:diego.pena@usc.es); [aitor.mugarza@icn2.cat](mailto:aitor.mugarza@icn2.cat)

### **This PDF file includes:**

Coverage-dependent characterization of molecular precursors  
Zoom-in on GNR pinning sites

## 1. Coverage-dependent characterization of molecular precursors

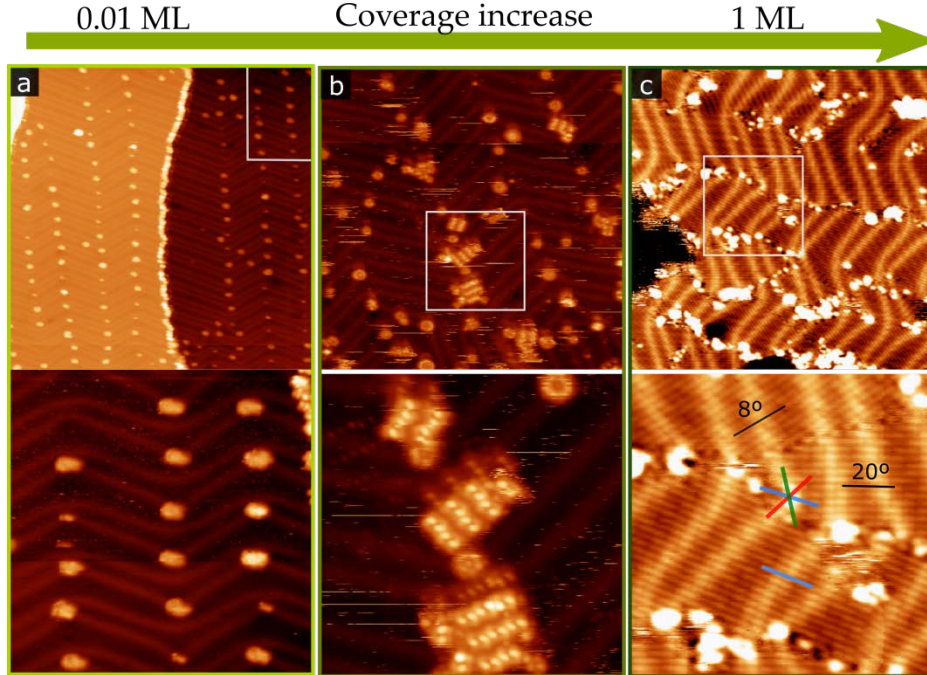


Figure S1: Coverage-dependent characterization of the adsorption configuration and self-assembly of molecular precursors. (a) STM image overview [200x200 nm<sup>2</sup>, I<sub>t</sub>=0.05nA, V<sub>s</sub>=0.7V] and zoom-in [60x60 nm<sup>2</sup>] of ~0.01ML coverage displaying preferential nucleation at the elbow sites. (b) STM image overview [100x100 nm<sup>2</sup>, I<sub>t</sub>=0.02nA, V<sub>s</sub>=0.5V] and zoom-in [30x30 nm<sup>2</sup>] of intermediate coverage where small clusters start close to elbow sites in several crystallographic directions. (c) STM image overview [80x80 nm<sup>2</sup>, I<sub>t</sub>=0.3nA, V<sub>s</sub>=1.7V] and zoom-in [30x30 nm<sup>2</sup>] of 1ML coverage displaying several domain orientations. Images were recorded at 77K. Color code indicating the 3 different directions observed for the molecular precursor alignment.

## 2. Close look at GNR pinning sites

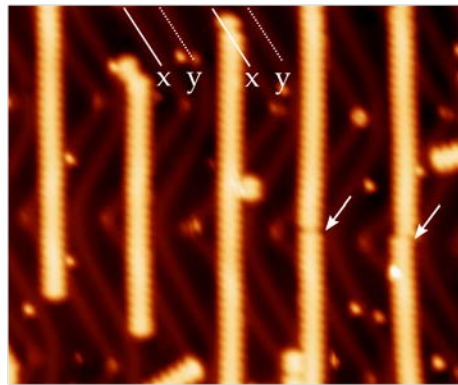


Figure S2: STM image displaying a close look at the GNR pinning sites at the diluted coverage regime showed in figure 4a in the main manuscript. The GNRs are confined between two contiguous y ridges, where dislocations are absent (x and y ridges are labelled on the top of the image). White arrows indicate lattice discontinuities found in some sporadic GNRs close to elbows, a reminiscence of the nucleation of polymers at these sites [41x34 nm<sup>2</sup>, I<sub>t</sub>=0.1nA, V<sub>s</sub>=1.4V, 5K].