

Supplementary Information

A new On-Surface-Synthetic Pathway to 5-Armchair Graphene

Nanoribbons on Cu (111) surfaces

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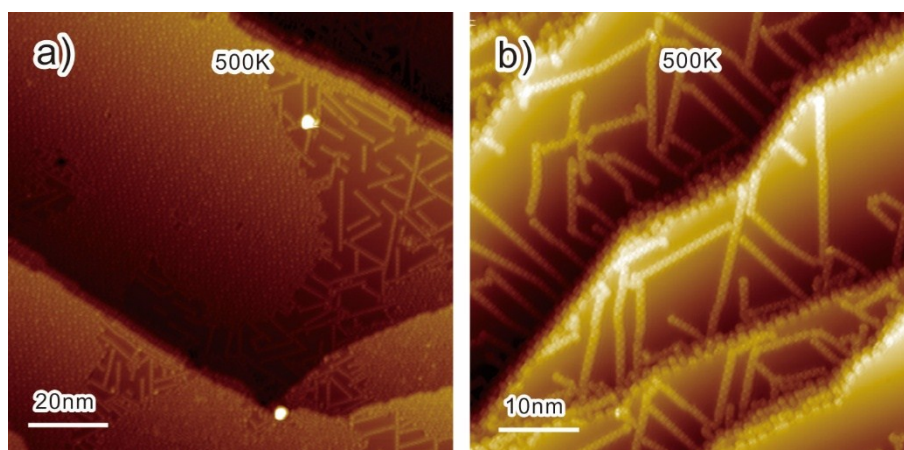


Figure S1. STM images of the sample prepared by depositing PTCDA on Cu(111) held at 500K, showing the coexistence of self-assembled PTCDA and copper-perylene chains.

Scanning tunneling spectroscopy measurements have been performed to explore the electronic property of the newly formed patches [1,2]. Figure S2, panel a, displays the STM image of some patches on the Cu (111) surface. Three asterisks (black, red, blue) mark the location where STS curves have been collected. Figure S1 panel b shows the

STS spectra obtained on top of the Cu (111) (black curve), bright patch (red) and dark patch (blue), respectively. The prominent features at 0.75V in dI/dV spectra of bright and dark patches is consistent with the spectrum of Cu_2O [2-4].

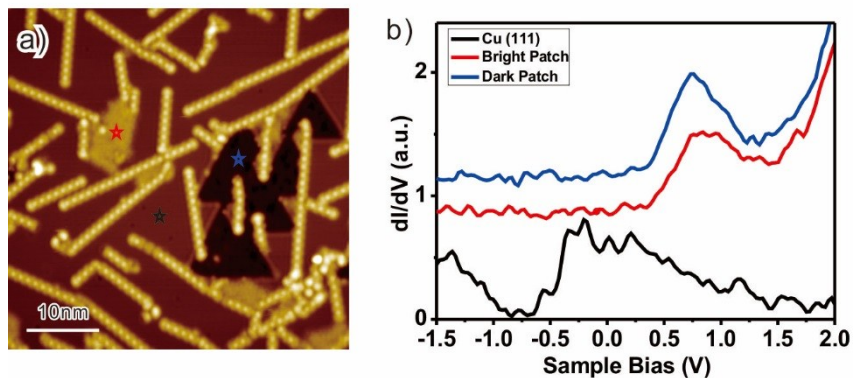


Figure S2 (a) STM image of the copper-terphenyl chains on Cu (111) with remarkable patches after exposure to oxygen (pressure: $2\sim 3\times 10^{-8}$ mbar) for thermal annealing at 370K ($V_b = 1\text{V}$, $I_t = 100\text{pA}$), (b) dI/dV spectra obtained on a bare Cu (111) surface (black), the bright patch (red) and the dark patch (blue).

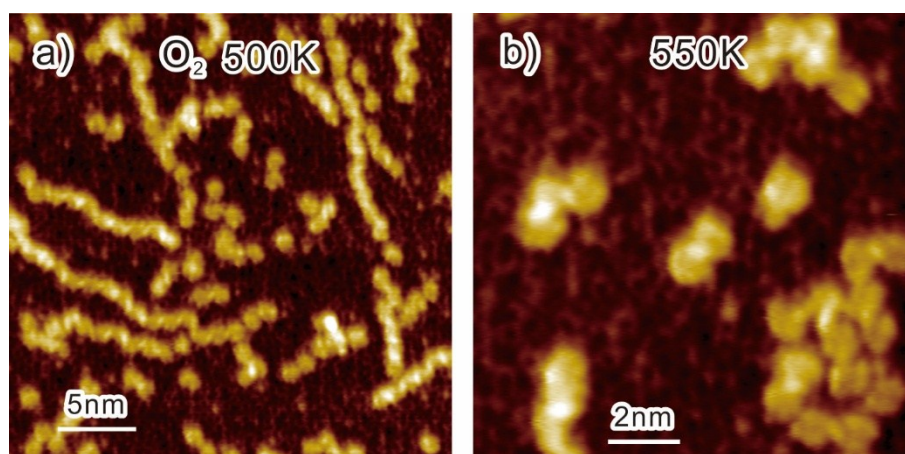


Figure S3 STM images of the sample annealed at 500K (a) and 550K (b) with the exposure of oxygen. Besides the copper-terphenyl chains, the segments of the chains are recognizable in STM images, showing the breaking of aryl-Cu bonds.

References

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