

Supporting information

Cooperating Dipole–Dipole and van der Waals Interactions Driven 2D Self- Assembly of Fluorenone Derivatives: Ester Chain Length Effect

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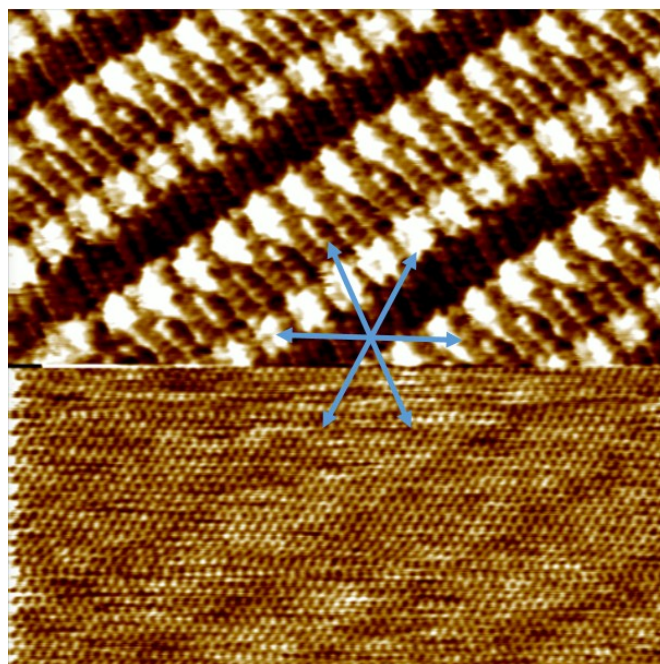


Figure S1. High-resolution STM image of coexistent structures of BAF-C1 and HOPG substrate. The white arrows indicate the 3-fold symmetry of the HOPG substrate. Scan area: $15 \times 15 \text{ nm}^2$; Tunneling parameters: $I_t = 531 \text{ pA}$, $V_b = 676 \text{ mV}$.

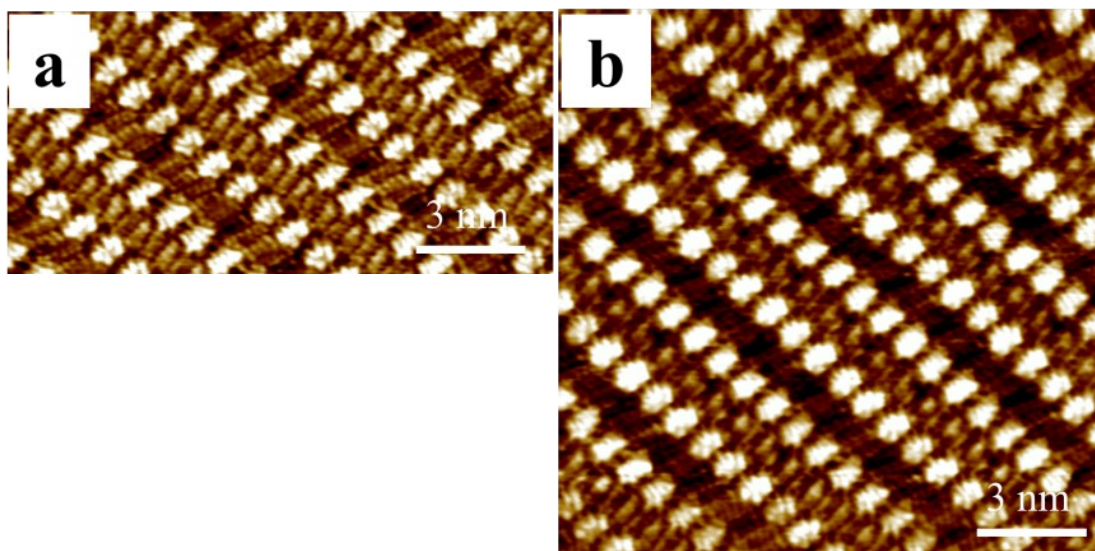


Figure S2. High-resolution STM images of BAF-C1 adlayer at 1-phenyloctane /HOPG interface. Tunneling parameters: $I_t = 524 \text{ pA}$, $V_b = 651 \text{ mV}$.

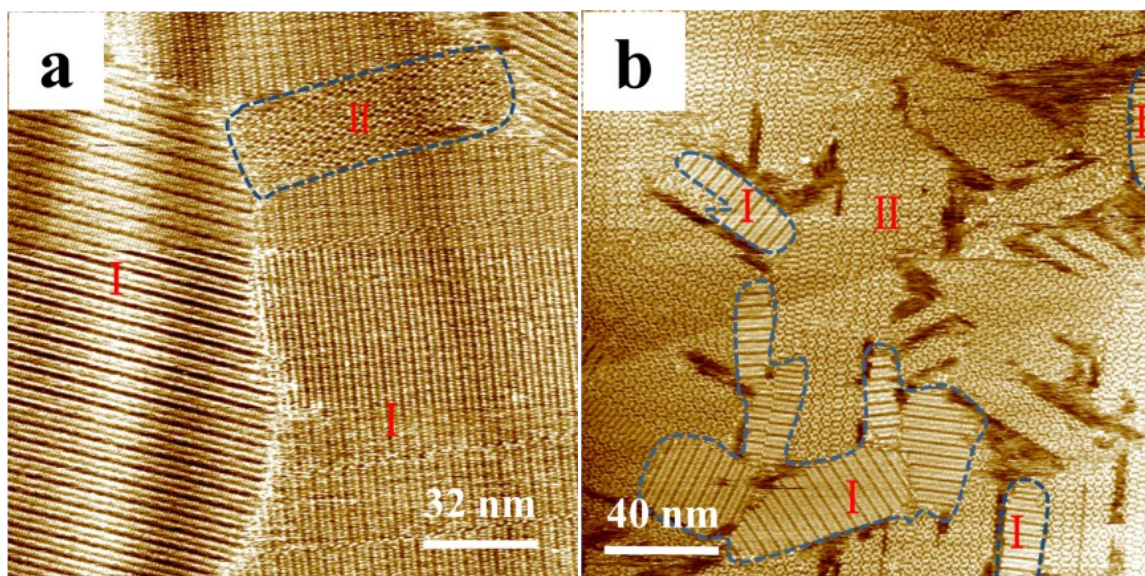


Figure S3. Large-scale STM images of self-assembled monolayer for BAF-C3 molecule at 1-phenyloctane/HOPG interface. The coexistent structures of linear I structure (labeled I) and cyclic structure (labeled II) of BAF-C3. Tunneling parameters: $I_t = 536$ pA, $V_b = 675$ mV.

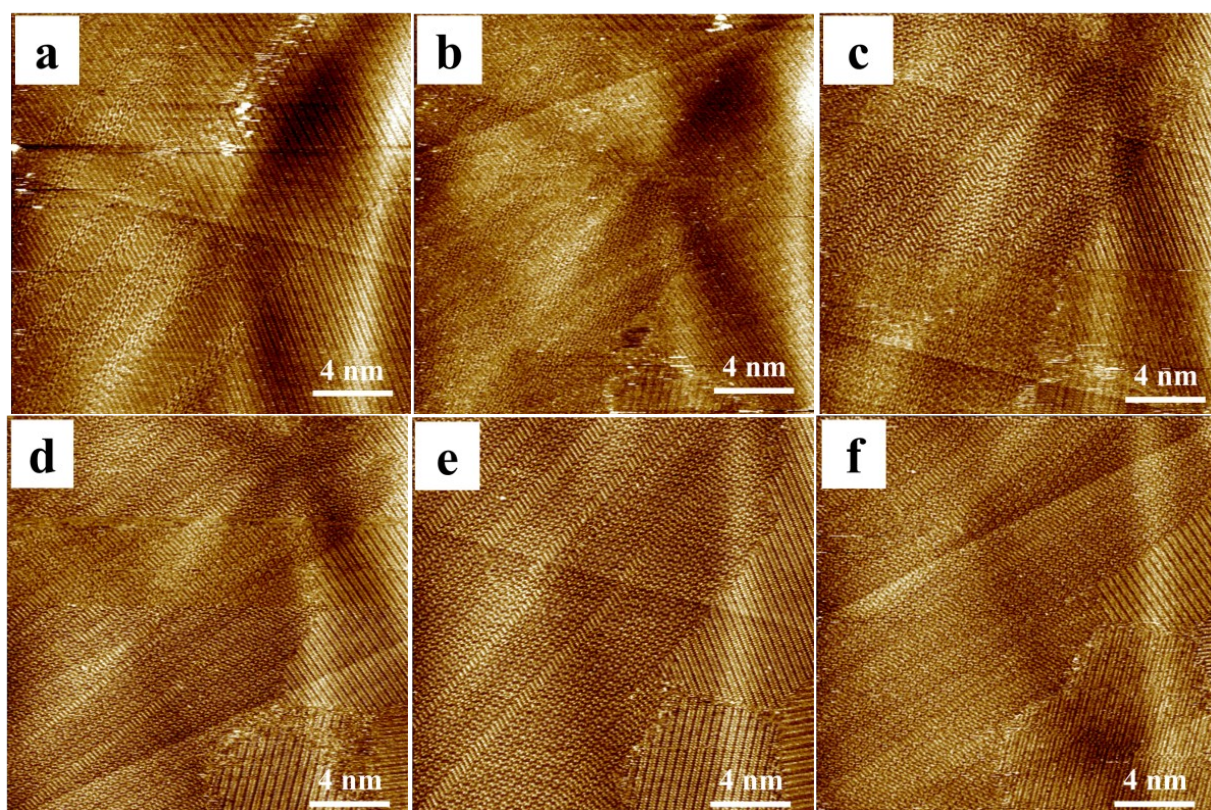


Figure S4. Large-scale STM images of self-assembled monolayer for BAF-C3 molecule displaying the gradual growth of linear I structure domains and reduction of cyclic structure

domains at 1-phenyloctane/HOPG interface at mediate concentrations. Tunneling parameters: $I_t = 450$ pA, $V_b = 671$ mV.

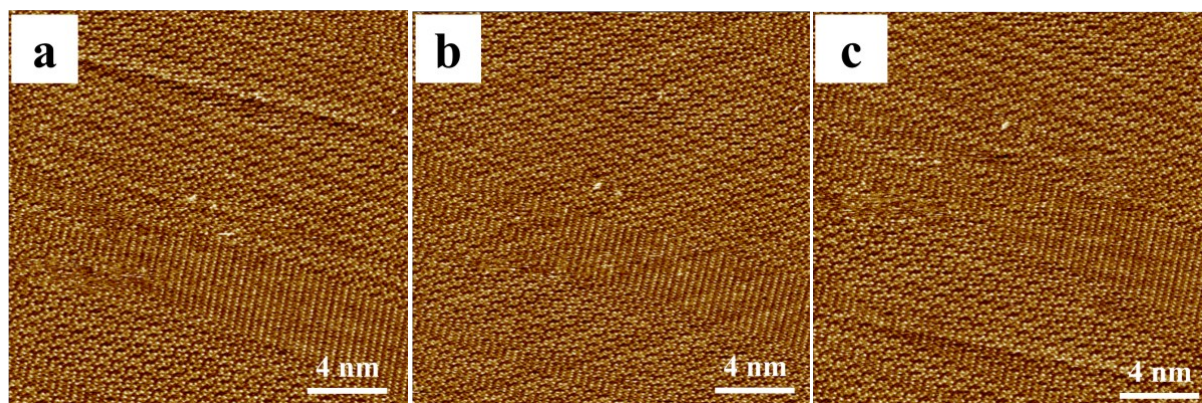


Figure S5. Large-scale STM images of self-assembled monolayer for BAF-C3 molecule displaying the gradual growth of cyclic structure domains and reduction of linear I structure domains at 1-phenyloctane/HOPG interface at mediate concentrations. Tunneling parameters: $I_t = 470$ pA, $V_b = 653$ mV.

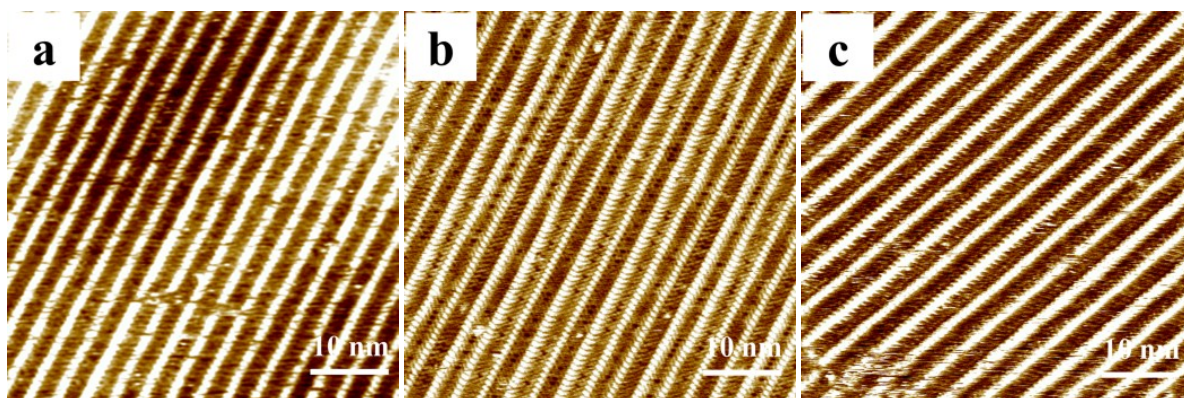


Figure S6. (a–c) Large-scale STM images of BAF-C n ($n = 4–6$) showing the linear II pattern at the 1-phenyloctane/HOPG interface. Concentration: 5.45×10^{-6} M; Tunneling parameters: $I_t = 521$ pA, $V_b = 650$ mV.