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【182】 Growth of polar molecules on ultrathin hexagonal boron nitride

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Crystalline films of small semiconducting organic molecules on two-dimensional materials like graphene or ultrathin hexagonal boron nitride (hBN) offer attractive potential for fabricating organic solar cells, organic light emitting diodes, and organic field effect transistors on flexible substrates. Here, we report on the growth of the polar, acene-like molecule dihydrotetraazaheptacene (DHTA7) on hBN. μm -long crystalline needles are observed which are oriented close to armchair directions of the substrates with a 9° deviation which originates from the dipolar interaction of the molecules as demonstrated by DFT calculations. Results are compared to needle growth of the nonpolar parahexaphenyl molecule 6P on hBN [1].

[1] Matković, et al., Sci. Rep. 6, 38519 (2016).

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