

Abstract Submitted
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A Cool Way to Form High-Conductivity Two-Dimensional Polymers Using Ice MOON JEONG PARK, Pohang University of Science and Technology — Ice surfaces are used as removable hard templates to form two-dimensional polyaniline (PANI) nanosheets. Distinctly high current flows of 5.5 mA at 1 V and a high electrical conductivity of 35 S/cm were obtained for the PANI nanosheets, which marked a significant improvement from the literature values on other PANIs reported over the past decades. These improved electrical properties of ice-templated PANI nanosheets were attributed to the long-range ordered edge-on p-stacking of the quinoid ring, ascribed to the ice surface-assisted vertical growth of PANI. The unprecedented advantages of the ice-templated PANI nanosheets are two-fold. First, the PANI nanosheet can be easily transferred onto various types of substrates via float off from the ice surfaces. Second, PANI can be patterned into any shape using predetermined masks, and this is expected to facilitate the eventual convenient and inexpensive application of conducting polymers in versatile electronic device forms.

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