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**Confinement of organic solvents by wet transfer of graphene** GREGORY DOIDGE, JOSHUA WOOD, ERIC POP, JOSEPH LYDING, University of Illinois — Transfer of graphene grown by chemical vapor deposition (CVD) on Cu requires a polymer support for the graphene and wet-etching of the Cu growth substrate. After etching, the polymer/graphene film must go through several solvent baths to remove contaminants. Water is commonly used for this cleaning due to its capability as a solvent and its ability to support the polymer/graphene film through high surface tension. By contrast, common organic solvents have lower surface tension, causing the film to tear and fold within the liquid. To bypass this challenge, we have implemented a polymer-bound truss to reinforce the polymer/graphene film, which avoids the need of proper solvent surface tension. We have transferred graphene grown on Cu using common organic solvents like methanol, isopropanol, ethylene glycol, and dimethyl sulfoxide for the final transfer liquids. This process traps the solvents between the graphene and the final substrate. Confinement effects are determined via optical microscopy, atomic force microscopy, and Raman spectroscopy for both the trapped solvent molecules and the graphene. Our procedure opens up the possibility of confining biological materials suspended in organic solvents under graphene.

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