

Abstract Submitted
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Templated graphene nanoribbon growth on SiC MING RUAN, MIKE SPRINKLE, YIKE HU, JOHN HANKINSON, MIGUEL RUBIO-ROY, BAIQIAN ZHANG, RUI DONG, ZELEI GUO, Georgia Institute of Technology, CLAIRE BERGER, Georgia Institute of Technology & CNRS- Institut Néel, WALT DE HEER, Georgia Institute of Technology — We demonstrate a photo-lithography fabrication method of graphene nanoribbon. Epitaxial graphene is grown selectively on SiC (1-10n) facets. For this, SiC is patterned to define 3-dimensional structures. Epitaxial graphene nanoribbons grow preferentially on the exposed sidewalls recrystallized facets that avoids post-processing lithography damage of graphene ribbons. Graphene ribbons narrower than 30nm were produced with this method and all-graphene interconnected structures are fabricated. Metal contacts are evaporated on large graphene areas seamlessly connected to nanoribbons. Transport measurement shows gap opening and high mobility. SiC crystal faceting was also explored. Low index crystal facets were found to be energetically favored.

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