

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Kirigami for Two-Dimensional Electronic Membranes¹ ZENAN QI², Boston University, DARIO BAHAMON³, Mackenzie Presbyterian University, DAVID CAMPBELL⁴, HAROLD PARK⁵, Boston University — Two-dimensional materials have recently drawn tremendous attention because of their unique properties. In this work, we introduce the notion of two-dimensional kirigami, where concepts that have been used almost exclusively for macroscale structures are applied to dramatically enhance their stretchability. Specifically, we show using classical molecular dynamics simulations that the yield and fracture strains of graphene and MoS₂ can be enhanced by about a factor of three using kirigami as compared to standard monolayers. Finally, using graphene as an example, we demonstrate that the kirigami structure may open up interesting opportunities in coupling to the electronic behavior of 2D materials.

¹Authors acknowledge Mechanical Engineering and Physics departments at Boston University, and Mackgrafe at Mackenzie Presbyterian University.

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Date submitted: 12 Nov 2014

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