

Abstract Submitted  
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**Additive lattice kirigami**<sup>1</sup> TOEN CASTLE, Dept of Physics, UPenn, DANIEL M. SUSSMAN, Dept of Physics, Syracuse University, MIKE TANIS, RANDALL D. KAMIEN, Dept of Physics, UPenn — Kirigami uses bending, folding, cutting, and pasting to create complex three-dimensional (3D) structures from a flat sheet. In the case of lattice kirigami, this cutting and rejoining introduces defects into an underlying 2D lattice in the form of points of nonzero Gaussian curvature. I will present a general set of techniques which unify a wide variety of cut-and-paste actions under the rubric of lattice kirigami, including adding new material and rejoining material across arbitrary cuts in the sheet. Creating complex structures may require multiple overlapping kirigami cuts, where subsequent cuts are not performed on a locally flat lattice. Our additive kirigami method describes such cuts, providing a simple methodology and a set of techniques to build a huge variety of complex 3D shapes.

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