

1096-05-854

**Jessica E Ginepro\*** ([jessginepro@yahoo.com](mailto:jessginepro@yahoo.com)), 136 Donbray Road, Springfield, MA 01119, and  
**Thomas C Hull.** *The Origami Miura Map Fold and Graph Colorings.*

The Origami Miura Map fold is a crease pattern in which each vertex looks like a bird's foot, with two congruent obtuse angles and two congruent acute angles. Each vertex has a mountain-valley assignment, only some of which are valid, meaning possible to fold without tearing our paper. Our goal is to count how many ways we can fold a  $N \times M$  Miura Map fold. In this talk we will discuss how the number of locally flat-foldable mountain-valley assignments of a  $N \times M$  Miura Map fold is equal to the number of proper 3-colorings of a  $(N + 1) \times (M + 1)$  grid graph with one vertex precolored. This research is supported by NSF grant EFRI-1240441. (Received September 10, 2013)