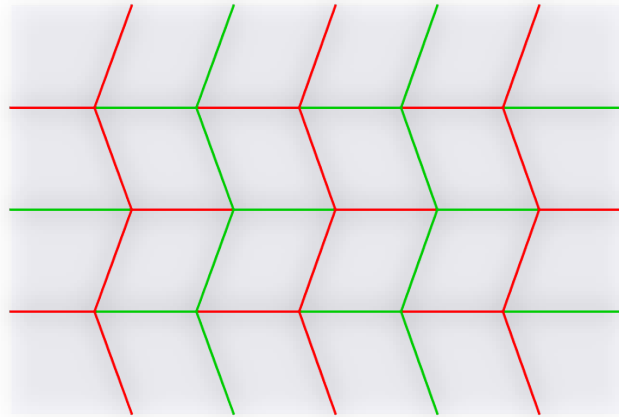
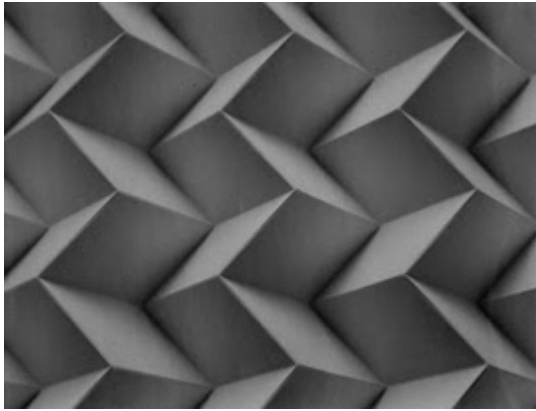


# Department of Mathematics

## *Fall 2016 Colloquium Series*



### **“Mathematical Origami: Forcing Sets for Miura Folding Patterns”**

Bradley Ballinger, Humboldt State University

**Thursday, October 27, 2016**

**Behavioral and Social Sciences Building Room 166, 4 pm**

Origami, the Japanese art of paper folding, has proven useful in many industrial applications, such as when a product needs to be compressed for transportation. One such application is a satellite solar panel array designed by Koryo Miura. In this talk, we will explore the concept of flat-foldability in the context of the Miura crease pattern. Although the original Miura satellite array was unfolded by an external device, there has been more recent work in self-folding origami, in which hinge actuators (for example) determine crease orientations. With this in mind, we consider the question: given a Miura grid, what is the smallest number of creases you need to control in order to force the whole grid to assume some mountain-valley assignment you want? This talk comes from joint work with Mirela Damian, David Eppstein, Robin Flatland, Jessica Ginepro, and Thomas Hull.

*Brad Ballinger is a professor in the HSU Department of Mathematics, where he enjoys teaching mathematics courses for future K-12 teachers as well as the occasional course in computer science. He also conducts research in computational geometry with a large group of collaborators, some of whom are named above.*

For a complete abstract, go to <http://www.humboldt.edu/math/news-and-events/math-colloquium>

***We cordially invite you to the Pre-Colloquium Tea on the third floor of the BSS  
building at 3:30 pm on Thursday.***