

## **Workshops suitable for high-school students**

**[Details of all workshops and registration is at thepoladianproject.com/workshops/](http://thepoladianproject.com/workshops/)**

### **Recreo Espacial: Learning Astronomy through Movement and Music (Anya Yermakova and Sebastián Pérez)**

20th February, 1:30pm–3:00pm in Slade Lecture Theatre, Physics Building, Sydney University.

[Please register here!](#)

“Recreo Espacial” (Space Recreations) is an educational project aimed teaching astronomy through music and dance. The objective is to enhance the existing rich accumulation visual representations of scientific information with embodied human experience. In the workshop the participants will be guided through an experience of key concepts in astrophysics (for example: angular momentum and energy conservation, nature of gravity / general relativity). Having acquired an embodied intuition for these foundational principles, we demonstrate the possibility of an improvisatory game in which the participants “discover” the formation of stars and planets.



### **The Science of Food (Anna Wang and Yu Heng Lau)**

20th February, 3pm–5pm, Slade Lecture Theatre, Physics Building, Sydney University.

[Please register here!](#)

In this workshop, drawing on Harvard’s Science and Cooking series, you’ll learn some of the physics and chemistry underlying food. What does whipping cream teach us about communications networks? What does making a vinaigrette teach us about interfacial energy and lung collapse? Part cooking class, part science class, we’ll show how the microscopic interactions of ingredients give rise to macroscopic qualities. Finally we’ll temper some special chocolate as an illustration of phase separation, phase changes and crystallisation. What’s special about the chocolate? So glad you asked! We will be using Ruby Chocolate, a mysterious new form of chocolate, based on a naturally occurring variant of the cocoa bean. Come and try it out, all the name of education of course!



### **Introduction to Modular Origami Polyhedra (Robert Lang)**

21st February, 4pm–5:30pm, Sydney Nanoscience Hub, Seminar Room 4001

Limited space for up to 50 high-school students, [Please register here!](#)

Specifically tailored to high-school students, this workshop will introduce the audience members to the genre of modular origami, folding polyhedra from multiple interlocking sheets of paper. We begin with a simple polyhedral unit, then progress to more challenging units and larger polyhedra as time and audience permit. During the course, the audience will learn a little bit of 3D geometry, but they won’t mind the math because they’ll have folded some cool shapes to play with.



## ***Special Evening Lecture***

### **Flapping Birds to Space Telescopes: The Modern World of Origami (Robert Lang)**

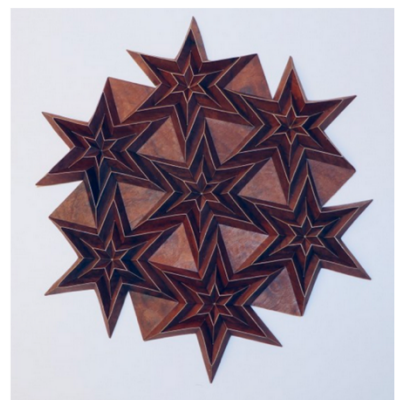
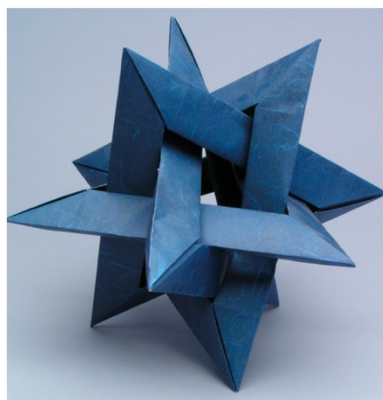
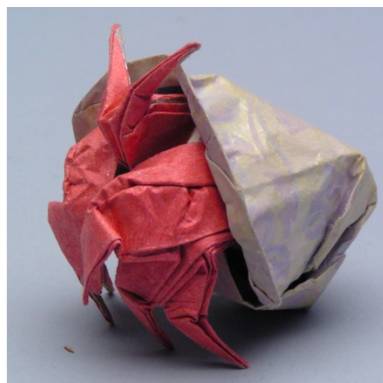
*Time:* 6:30pm

*Location:* New Law School Lecture Theatre 101

Please [register here](#)!

The last decade of this past century has been witness to a revolution in the development and application of mathematical techniques to origami, the centuries-old Japanese art of paper folding. The techniques used in origami design range from the abstruse to the highly approachable. In this talk, Dr Robert Lang will describe how origami changed in the 20th century from a simple craft to an art form of mind-blowing complexity and realism. Much of this development came from the discovery of the mathematics of origami, which, though developed for art's sake, has led to some surprising practical applications. The algorithms and theorems of origami design have shed light on long-standing mathematical questions and have solved practical engineering problems. Dr Lang will discuss examples of how origami has enabled safer airbags, Brobdingnagian space telescopes, and more.

[Robert Lang](#) is a pioneer of the newest kind of origami—using math and engineering principles to fold mind-blowingly intricate designs that are beautiful and, sometimes, very useful. He has been an avid student of origami for over fifty years and is now recognized as one of the world's leading masters of the art.



All images are of [Robert Lang's artworks](#); credits: [Hermit crab 1](#), [Hermit crab 2](#), [Bassist, Pianist, and Violinist](#), [Organist](#), [Gasherbrum](#), [Davidic Resch 1](#).