# Workshop Design Thinking Lab: Math Goes Fashion

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## Abstract

The presenters will offer a cross-disciplinary workshop integrating mathematics, art, design, architecture and especially fashion in the classroom, or a workspace at a university, in a very creative manner. They will incorporate basic mathematical ideas such as triangulation, hyperbolic geometry and the class of convex polyhedrons known as platonic solids. Students and teachers engaged in this project will be immersed in the creative process, and they can join in wherever they are interested. They will create, discuss and prototype their ideas, and explore mathematical tools, integrating them with art and the design process.

## 1. Design Thinking LAB at Bridges Conference Coimbra

A Design Thinking Lab in general is based on special methods and interdisciplinary interaction in order to evoke creative ideas and solutions. Participants meet, discuss and prototype their approach to the topic in a special manner. “Design thinking can be described as a discipline that uses the designer’s sensibility and methods to match people’s needs”. [1]

## 2. The Purpose of the Workshop

The purpose of this workshop is to give participants an experience of the atmosphere and spiritedness of a Design Thinking LAB, focused on the topic, “math goes fashion”, physically reflecting the saying: “Don’t judge any man until you have walked two moons in his moccasins” [2]. They might not only walk two hours in the moccasins of artists and designers but also some time in the mind of a hoodie or a platonic solid.

## 3. Background

“Members of interdisciplinary teams are, in effect, translating specialized knowledge into a “synthetic product”, acting as filters for each other, consulting experts, and the ultimate recipients of their work, whether they are students, patients, clients or other scholars” (Klein 1990, 190). The dialectical framework enables the material from separate disciplines to be integrated. An inter/transdisciplinary approach involves re-thinking, teaching and learning, and provides a liberal or horizon-expanding education. Mathematicians, artists and designers meet in the tradition of the design studio, with its emphasis on project-based learning with multidisciplinary teams, learning in and through “doing” [4]. Changes take place when there is the possibility of a collaboration, because each team adopts the others’ rules and way of thinking [5].

## 4. Previous Knowledge or Talent Needed?

No, anybody who is curious about this kind of transdisciplinary approach can participate. Interest and respect of other disciplines would be helpful.

## 5. Corners & Workstations

There will be possibilities to work with different materials such as membranes, paper, garment and so on, which will be provided. The workspace will be designed as zigzag tables, and at each corner one of the presenters will elaborate one of their topics. As the participants join in the spaces between the corners they will explore the topics and temporary solutions. Everybody can start and end the workshop stations by own decision to experiment the different problem domains and solutions. This is due to the fact that this approach is a continuous process such as learning.

**Corner & Workstation 1.** (Walter Lunzer) In this workstation participants are involved in garment pattern-making by triangulating congruent convex regular polygons or by using non-euclidean geometry.

**Corner & Workstation 2.** (Ruth Mateus-Berr) In this workstation participants *walk in the moccasins of artists, designers* and in the mind of a hoodie or a platonic solid to experience math and fashion through experiment and story telling.

**Corner & Workstation 3.** (Dominik Gross) In this workstation participants explore art not only from the viewpoint of perspective geometry but also as a product of topological transformations.

**Corner & Workstation 4.** (Konrad Cernohous) In this workstation participants put themselves in the position of making prognoses about the physical dimensions of special inflatable objects by finding a formula, prior to inflating them.

**Corner & Workstation 5.** (Peter Michael Schultes) In this workstation participants re-think and explore the exact design of inflatable objects in contrast to the multi-solution focused fashion approach, and develop pattern-making solutions for inflatable objects.

**Corner & Workstation 6.** (Jasmin Schaitl) In this workstation participants design Body-Index-Cloth by using parabolas calculated and shaped due to individual body measurements. In the process of experimenting and fitting the clothes to their own bodies, the relation between body and cloth becomes closer and opens up the possibility to define oneself with self-made clothes.

## References

[1] T. Brown, 2008. *Design Thinking*. Harvard Business Review. 2008 Jun; 86(6): pp. 84-92. 141. PMID: 18605031
[2] Native American idiom
[3] J.T. Klein, *Interdisciplinarity. History, Theory, Practice.* Michigan. Wayne State University Press. p. 190. 1990.
[4] D. Schön, *The Reflective Practitioner. How Professionals Think in Action*. Basic Books. 1985.
[5] H. Rauterberg, *Architektur.* "*Die Freiheit ist größer denn je*". http://www.zeit.de/2008/24/Koolhaas Interview (accessed on 4.3.2010).