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Mathematical Beauty of the tetrahedra
17 x 24 x 26 cm
3D Printed objects in Strong & Flexible Plastic
2015

The three works of art that I present attempt to show the amazing and incredible results that can be achieved using mathematics, computer programs developed for this purpose and professional 3d printers. This time I have made three homages:- To the mathematical beauty of the tetrahedra.George Birkhoff defines beauty as order/complexity. Regueiro's theorem is not really complicated to prove, but gives great order to calculate areas of a tetrahedron, so what led him to not be recognized for 50 years –to have easy demonstration- is one of the reasons for making it one of the most beautiful theorems of geometry (in my opinion, as the creator).- To Seoul with Ying Yang 3D- To Bridget Riley and his "Movement in Squares"

Mathematical Beauty of the tetrahedra • At first glance we see a net of rhombic triacontahedron in the plane extended to a circular shape by adding diamonds. It has its beauty. But the interior has its own beauty, mathematical beauty. Indeed, several of the tetrahedral included in the figures, or even the whole work, satisfy that the squares of the areas of the triangular faces added with + or - signs come to zero.It is actually another version of the 3d Pythagorean Theorem that I discovered 50 years ago (different from the trirectangular tetrahedron). In its anniversary, I want to rediscover it for everyone. It can be inferred that $A^2 + B^2 = C^2 + D^2$ and many similar formulas.

Yin Yang 3d or double scallop • The yin and yang is a symbol of Korea, for which we all recognize this country. However, the Irish Book of Kells is full of these symbols, such as Galician triskele is present at the royal palace in Seoul. I think it is no coincidence, and it is not that Korea is one of the countries with megaliths. There is a kind of ancient historical connection between the Celtic countries and Korea. This work aims to strengthen or remember this connection. When making a 3D version I try to capture, through mathematics, three-dimensional version recalls the double mollusk shell, specifically the scallop, symbol of the Way of St. James. Its symmetry, however, makes it impossible to exist in the real world. A parametric surface with simple equations.

Homage to Bridget Riley • From "Movement in Squares", the work of Riley, to "Squares in Movement". Riley 's artwork inspires the computer program that evolves over time . This program is governed from a Leap Motion and /or an Arduino. Thus, the number of works of art generated, similar to Riley style, are very numerous, and the image of the display shows a composition with some of them. You can imagine these images produced by the evolution of an initial image through paths and unexpected movements. This work is also inspired by the Paris exhibition Dynamo in 2013, in which there were many works involving kinetics made by Riley. In fact, the works not only seem to move, but move over time, evolve and interact with sensors such as Leap Motion or Arduino buttons.

Yin Yang 3d or double scallop
20 x 16 x 20 cm
3D Printed object in Strong & Flexible Plastic
2015
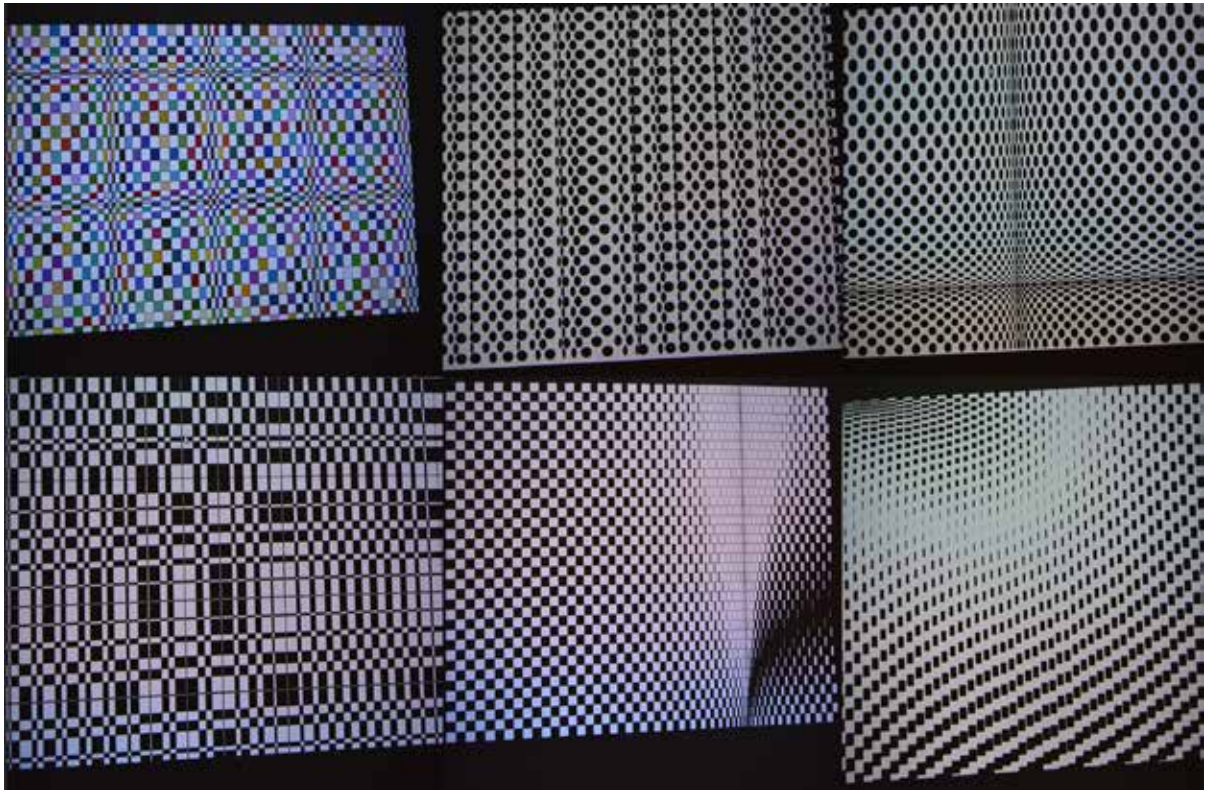
Homage to Bridget Riley
Display in a computer, with a program that produce the artwork
2014