

INTRODUCTION TO THE VISUALIZATION OF THE ARPAM PROJECT

The ARPAM project refers to the construction, inside a large verdant park, of 10 small buildings called follies in architectural terms. The choice of 10 refers to the famous Pythagorean number called the «Tetractys» ($1 + 2 + 3 + 4 = 10$). An administrative building bearing the name «Bourbaki», in part devoted to various kinds of meetings, completes the set of buildings. The fundamental architectural data of the follies were given in <http://arpam.free.fr/Fais.pdf> [Fais] and in three other papers :

[Fine Mathematical Art through the Arpam Project](#)

[The Poincaré Surprises](#)

[The Boy Surface as Architecture and Sculpture](#)

The creation of the visualization of the Park is an absolute preliminary as a tool for decision-makers and donators who may contribute to the realization of the project. It is not an easy job to create that visualization since it needs a lot of various competencies. Given the peculiarities of each building, the mathematics behind its definition, the technical aspects of its realization, this visualization has to be done by an architectural group with capabilities in maths in visualization techniques in modern construction material.

We shall show here preliminary visualizations of only 4 follies. The plans of the two first where given in [Fais].

1) The Seventh Temple, a folly devoted to group theory : Its visualization was made by two students of Institut International du Multimédia, Christophe Delsart and Yvan Ngnodjom. The rough Maquette was made by myself. Illustrations (tessalations) are by Mike Field.

2) The Apollonius Headdress, a folly devoted to conics and quadrics : Its visualization was made by Dmitri Kozlov from the Academy of Architecture of Moscow.

3) The Euler Bridges, devoted to topology and graph theory : Visualization made by Dmitri Kozlov. He introduced a few bright sculptures.

4) The Boy surface, also named the Boy Brioche : Under the supervision of François Apéry, Christophe Delsart and Yvan Ngnodjom made an introductory film showing the structure of the folly. To look at the film, click on : <http://christophe.delsart.free.fr/ARPAM/>

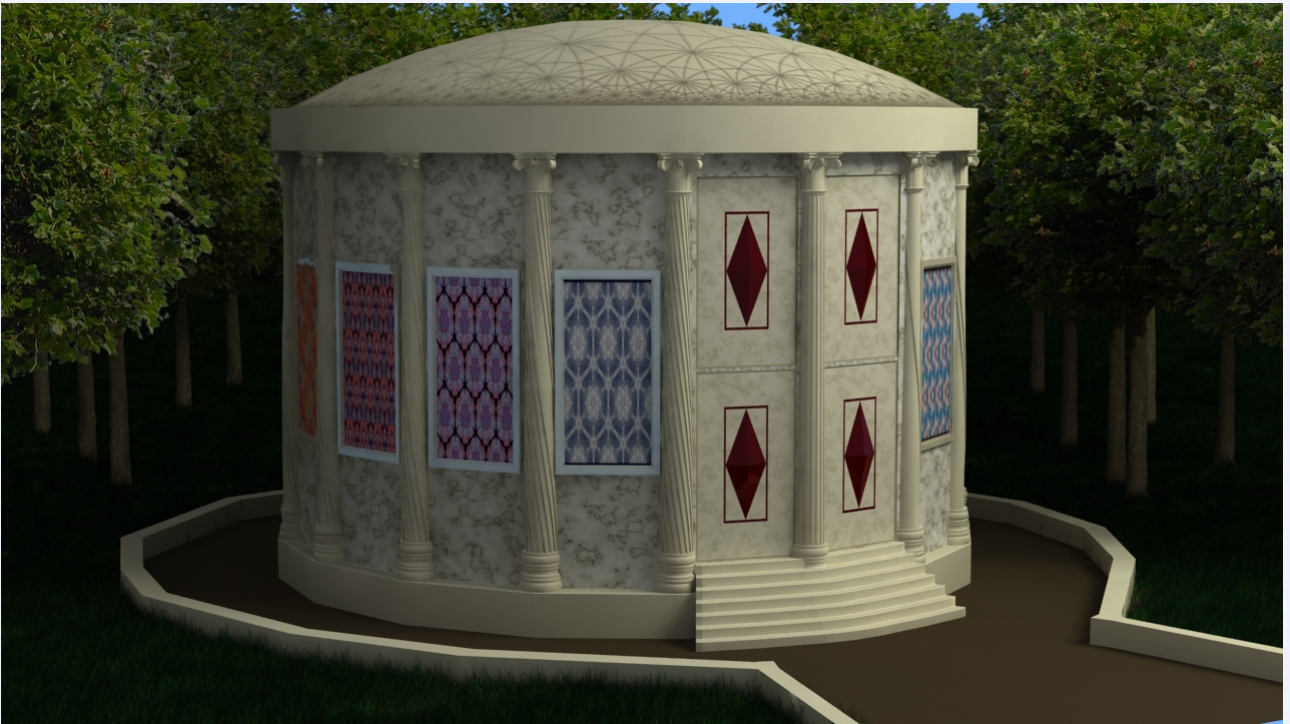


FIGURE 1 – Seventh Temple 2



FIGURE 2 – Seventh Temple P1010074



FIGURE 3 – Seventh Temple P1010072



FIGURE 4 – Seventh Temple P1010073



FIGURE 5 – Seventh Temple P1010076



FIGURE 6 – Apollonius Cone Visualization Front View Print



FIGURE 7 – Apollonius Cone Visualization Back View Print



FIGURE 8 – Apollonius Cone Visualization General View Print



FIGURE 9 – Apollonius Cone Visualization Right View Print



FIGURE 10 – Euler Bridges Bridge3 View Print



FIGURE 11 – Euler Bridges Bridge5 View Print



FIGURE 12 – Euler Bridges General View Print



FIGURE 13 – Euler Bridges Island View Print



FIGURE 14 – Euler Sculptures View Print

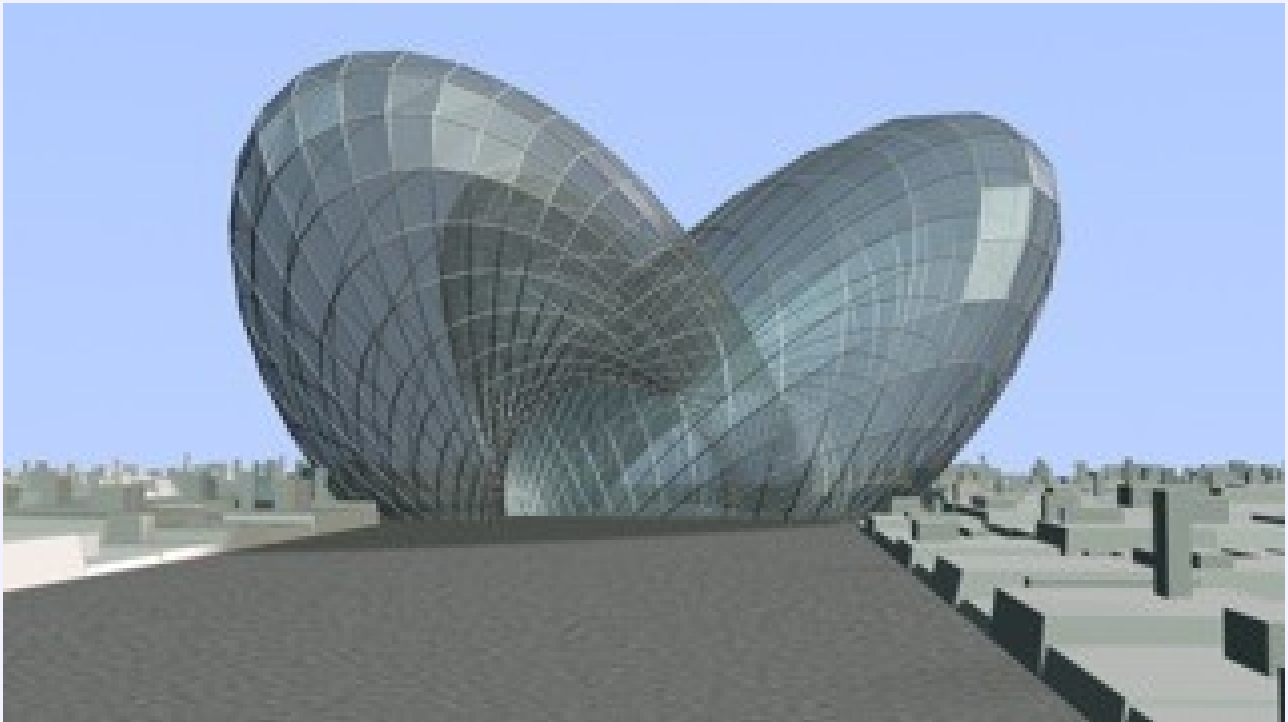


FIGURE 15 – Boy Surface 001



FIGURE 16 – Boy Surface Presentation Juin v01-Demi

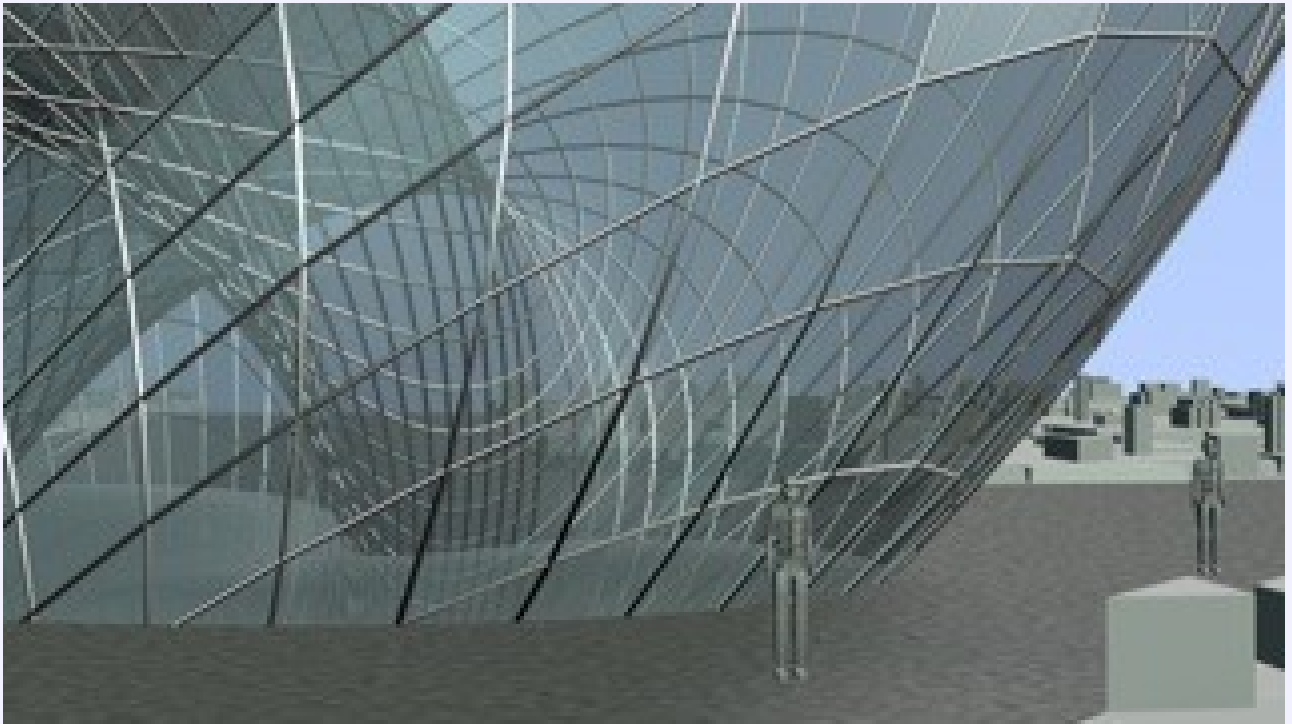


FIGURE 17 – Boy Surface 002

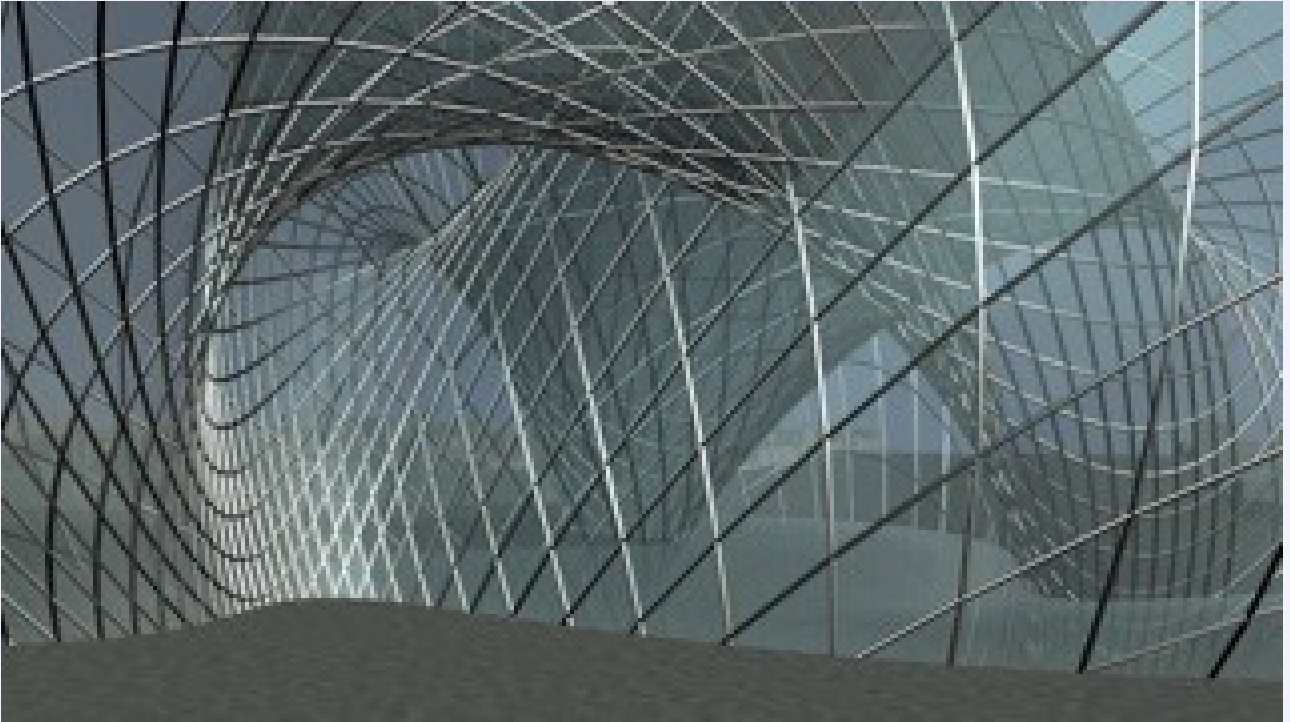


FIGURE 18 – Boy Surface 003

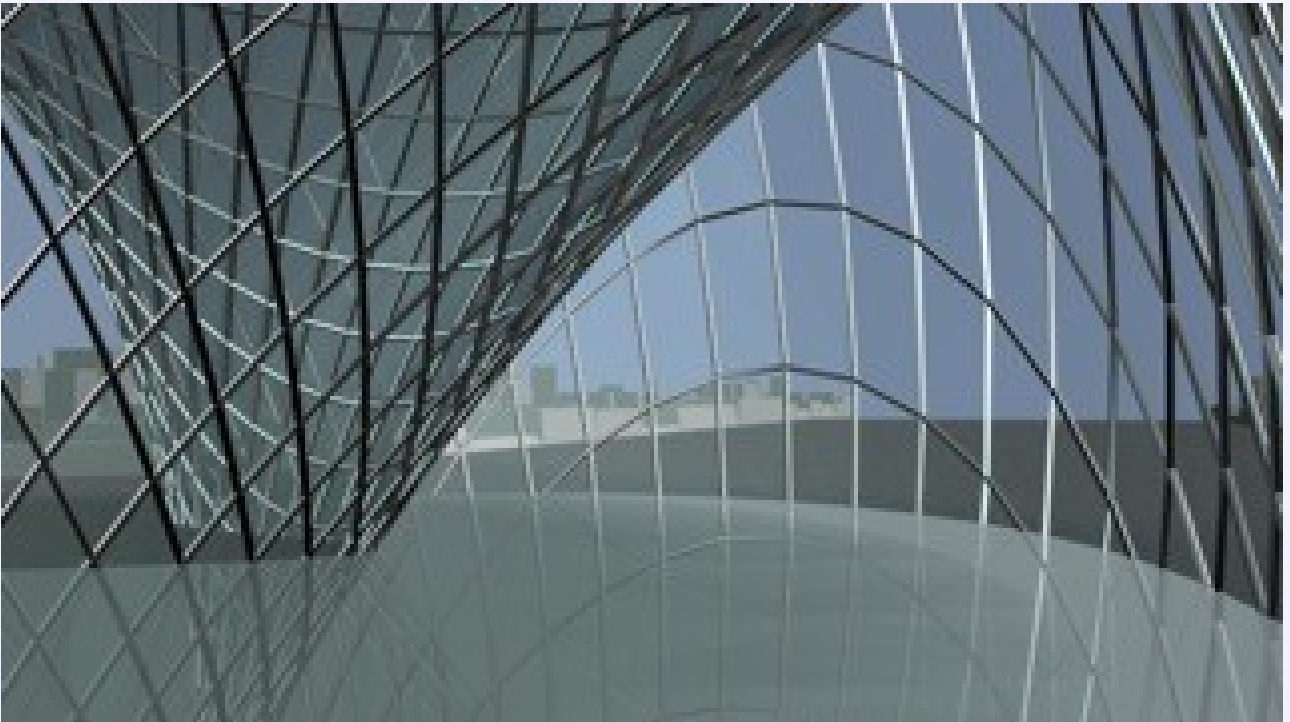


FIGURE 19 – Boy Surface 004

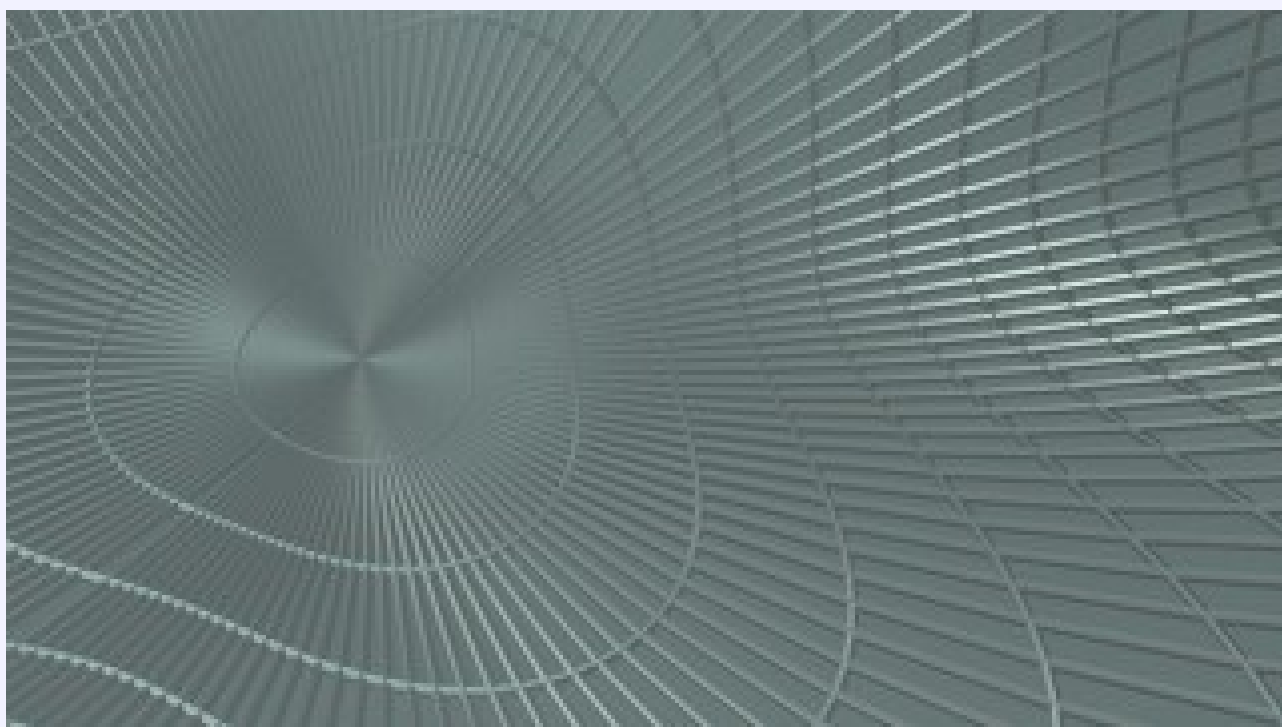


FIGURE 20 – Boy Surface 005

Different views on the Whitney Umbrella's folly which, on each of its side, houses a significant part of its homeomorphic cousin, the swallow tail.



FIGURE 21 – Whitney Umbrella's folly



FIGURE 22 – Whitney Umbrella's folly



FIGURE 23 – Whitney Umbrella's folly



FIGURE 24 – Whitney Umbrella's folly