



Newsletter

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Dear All,

Exploring the web, one can find a large amount of websites and papers devoted to math and art. The audience's level of comprehension should be taken into account when presenting documents and experiments. It could then be useful to evaluate the results.

Math Art : the X-Schools includes a new Greek document. It describes the activities of a teaching team involved in the use of art works to introduce and teach some very basic mathematics to young students. The team included five people, sometimes at university level, three of them teaching mathematics, two art. The mathematical content of the program is standard, and is found almost everywhere at that level. It includes the Pythagorean theorem, the golden number and a few symmetries.

The students created a seascape on a wall, in the same spirit of the artists of the Renaissance, for whom the mathematical basis is only implicit in their works.

According to Katerina Glinou <eleok77@yahoo.gr>, the leader of the group, «Last but not least, 67.5 % of the students, stated that they really enjoy the classes when Mathematics are combined with Art.» Let us emphasize that other similar experiments confirm that positive success rate, around 70%.

Resting on math-art works as for instance those appearing in the ESMA catalogue or even in the Glaeser-Polthier book, different mathematical contents, including more recent mathematics, can be conceived and taught at different levels including the primary school level. Time is lacking to write well defined and complete proposals.

All the mathematical facts are curiosities. Some of them are accessible only to a few specialists, while a very few others can be presented before almost any public. One of the simplest mathematical curiosities is the fact that some special lines in a triangle meet at a point (a consequence of more general curious fact, the Ceva theorem). Of course, you can begin a lecture or a conference by awaking the interest of your public concerning one or two such curiosities, adapted to their level of knowledge in mathematics. But immediately





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then, we must enter an other kind of discourse.

One of the main ESMA purposes is to reach the general public. Its natural sensitivity can grasp simple though deep concepts, «ideas» in the Platonic sense, which have played a fundamental role in the structuration and the evolution of our environment from the beginning. They arose from the observation of the physical world which then unfolds into the biological and the social worlds. Since the mathematical universe is a symbolization of the previous observed worlds, these ideas do appear in mathematics - and mathematicians have indeed greatly contributed in bringing them to light. Thus it is pertinent to point out these «ideas» from the various mathematical art works, and to show some of their incarnations in the daily observations of natural processes and objects.

Concepts, ideas, notions, words like, for instance, trajectory, stability (and its corollaries like symmetry, representation, regulation, ...), singularity, bifurcation, foliation, fibration, ... are easy to illustrate, to understand and to fascinate by the universal character of their meaning, bringing a larger comprehension of our world. Unlike a few other symbolizations such as some religious ones, these ideas do not give rise to controversies, but contribute to the cohesion of the human community.

A few more recent and more abstract concepts like category, sheaf or topos, which are in some sense extensions of the concepts of representation and fibration, can be introduced only to people already quite familiar with the previous ones and their incarnation into mathematics, so not to the general public.

In the last July Newsletter I briefly evoked the concept of foliation and its immediate extensions. Since the idea of fibration appears in the preceding lines, I would like to add that these two «transversal» ideas are deeply linked, in the same way as an electric field gives rise to a magnetic one, or as in a building made with bricks, horizontal layers are supporting attached vertical layers.

Next year, some new exhibitions with lectures and conferences are planned so that new tests of these views will contribute to evaluate their pertinence.

*Best wishes,
Claude*



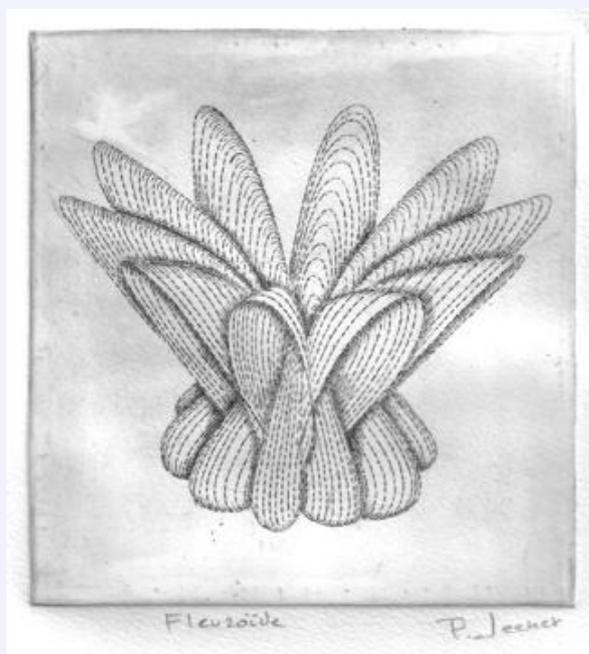
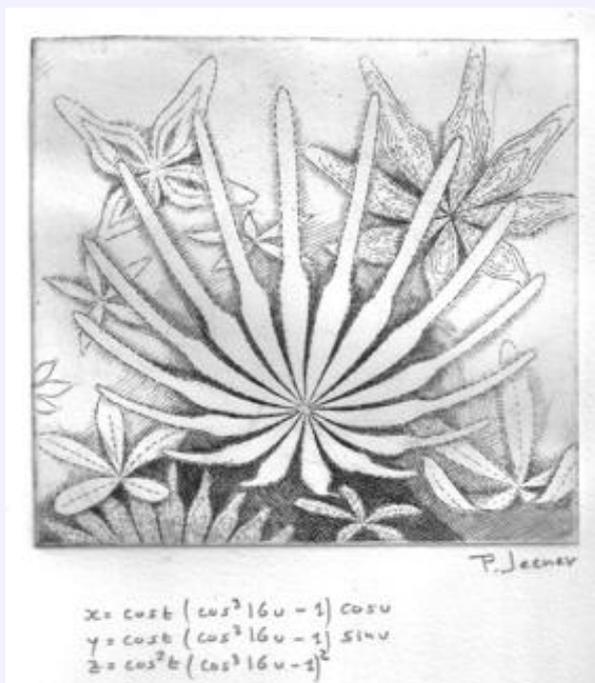


General view of the work created by Greek young math-art artists



A detail

Two Fleuroides by Patrice Jeener



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<http://www.math-art.eu>