



## ESMA Newsletter N° 1 February 2010

Dear Colleagues,

Please find here some news on the ESMA life :

- 1) **Conference** (previous 19-20, now 19-22 July 2010) : We have received 13 lecture proposals (with title) and are expecting 10 more. The conference dates are being extended two extra days, from Monday July 19 to Tuesday July 22.
- 2) **Exhibit** (June-July) : The IHP will hold the annual Clay meeting in June. An exhibit will go along with this meeting. Participants to the ESMA conference have been invited to display their work in this exhibit as well.

Note 1 : To honour Poincaré, Cédric Villani (director of the IHP) wishes that the June part of the exhibition be mainly focused on Poincaré mathematical works, in particular on the Poincaré conjecture. We will be able to show artistic works on dynamical systems and on the 3-space, but not specifically on the Poincaré conjecture. We are encouraging new static and dynamic works (animations) illustrating the solutions (through topology and analysis) of the conjecture, for example showing deformations of curvatures under the Ricci flow. Please contact us if you work or know of works available in that field.

Note 2 : The French newspaper *Le Monde* will report on the Conference and on the exhibit.

- 3) **Website** : We are indebted to Jean Constant ([jconstant@mathart.eu](mailto:jconstant@mathart.eu)) for creating created the ESMA website. Richard Denner has joined him as ESMA database manager. You can send them suggestions or ideas for improvement at [info@mathart](mailto:info@mathart).
- 4) **Resources Centre** : ESMA is in the process of developing an original resource centre to serve its membership. Individual suggestion and recommendation will be greatly appreciated and sent at [info@mathart](mailto:info@mathart). The resources centre has to be thought as a useful library giving information on old and new mathematical questions and objects, on technical tools to produce artistic works. Comments on the content of each reference will be very appreciated as well.
- 5) **Problems corner** : This section might become a part of the Resource centre. Suggestions and questions encountered by people working on math and art will be featured in this section. Example of which could be particular mathematical issues such as :
  - i) tensegrity : give the physical and mathematical study of the objects designed by the artists
  - ii) knots from polyhedrons : consider a regular polyhedron, its internal and external edges. Enumerate the knots of a given type that arise from these edges. Define the

minimal sets of knots whose join reconstructs the polyhedron through its external edges.

iii) shadow art : given an embedded manifold in an Euclidean space  $\mathbf{R}^n$ . Along a vertical direction, the study of its apparent contour on a Euclidean linear subspace  $\mathbf{R}^m$  has been worked out. What's about an other direction of projection ? Replace  $\mathbf{R}^m$  by first a smooth deformation  $M$  of that space, controlled by the curvature. Now given two such apparent contours on  $M$  and  $M'$  ("a Monge pair"), or more generally on several apparent contours, characterize the simplest object they define.

6) **Treasury** : The treasurer of the Society is Hervé Lehning ([lehning@noos.fr](mailto:lehning@noos.fr)). Checks should be sent to : ESMA, H. Lehning, IHP, 11 rue Pierre et Marie Curie, 75231 Paris, Cedex 05 (BIC or SWIFT : CEPAFRPP751, IBAN : FR76/1751/5006/0008/0001/8634/606)  
Publications, conferences, we might think also of winter and summer schools, need money. Standard 2010 dues for individual members are 30 €. Members with economical difficulties may request a deferred payment or submit in-kind donation to be evaluated in lieu of payment by the Executive board. You are invited to contribute from now.  
All members are welcome to contact their local government or institutions on behalf of ESMA to solicit additional funding to promote our activities.

7) **Membership** : 40 people have already registered in the society since January. Potential membership number may increase to 80 and above in the near future.  
We do hope that other individuals and institutions will find interest in ESMA whose scope is to be useful, help individuals, the artistic and mathematical communities as well, in the following senses :

From the point of view of the mathematical community, useful means mainly:

- i) to help to reduce the psychological barriers that separate the mathematical world from the public at large.
- ii) and thus to try to give an idea of what mathematics are to all publics at different levels
- iii) to introduce new mathematical problems and views arising from artistic projects and artistic considerations.

From the point of view of the artistic community, useful may mean :

- i) to help artists attracted by the purity and the diversity of shapes arising from the mathematical universe, and introducing them to this universe
- ii) to facilitate the contacts with mathematicians and the digital environment
- iii) to help them in making known their work

Thus ESMA facilitates communication between all people and all local European institutions sharing the same purpose, so that, as a consequence, they can help one each other. From that perspective, ESMA is also a kind of federation of persons and institutions in the same spirit as the European Math Society representing individuals and local mathematical societies of Europe.

With my best wishes  
Claude P. Bruter  
12.02.2010

**ESMA**  
**IHP, 11, rue Pierre et Marie Curie 75231 PARIS CEDEX 05**  
[www.mathart.eu](http://www.mathart.eu)