European Society for Mathematics and the Arts

Newsletter

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*Dear Reader,*

*First two administrative information.*

*1) We will have to wait until next October to get and give precise information about the organization of the Ljubjana Conference (September 2016).*

*2) Under the title «Mathematics and Art III, Visual Art and Diffusion of Mathematics», the Proceedings of the Cagliari Conference will appear in the bookshops in June. The book, 18 € per copy, can already be ordered from the French publisher Cassini (www.cassini.fr).*

*Two papers of that book are devoted to mathematical models, in fact mathematical models from the past. With the development of topology, a new class of models have recently appeared. The old models were made of plaster or wood. Some of them, as ruled surfaces, were made with threads. Their rigidity is a common characteristic of all these models. Topology is involved in the search of objects whose some properties are invariant under deformations. Thus topology is interested in flexible models: they form the new class of models.*

*Maybe for the first time, a showcase in the IHP library is actually devoted to these flexible models. Remember that the around* 500 *IHP models will constitute the core of the future IHP Museum. We can expect that the experimental showcase is the germ of a future development of the museum.*

*In fact the glasscase shows three rigid models, linked to the Boy surface. Indeed, two of them, in plaster, are rather dull. The third one, made with bright metallic threads, illuminates its surroundings. It is the basic Morin representation of the Boy surface made by François Apéry with calculated ellipses which fix the rigidity of the model.*

*All the other models are truly flexible however. The architect Dmitri Kozlov and the artist Philippe Rips made them. When made with shining metallic threads, reflecting the rays of the sun, these models are particularly attractive.*

*Dmitri Kozlovs Nodi, a subclass of knots named Turks Heads, are now well known. His article in the previous Proceedings notably describes the three one can see inside the showcase. The central one is of particular interest. We can think of it as a kind of frame of the one sheet hyperboloid. What is marvellous with that nodus is that it can be deformed up to bifurcation states where it becomes the frame of a torus, then of a sphere.*

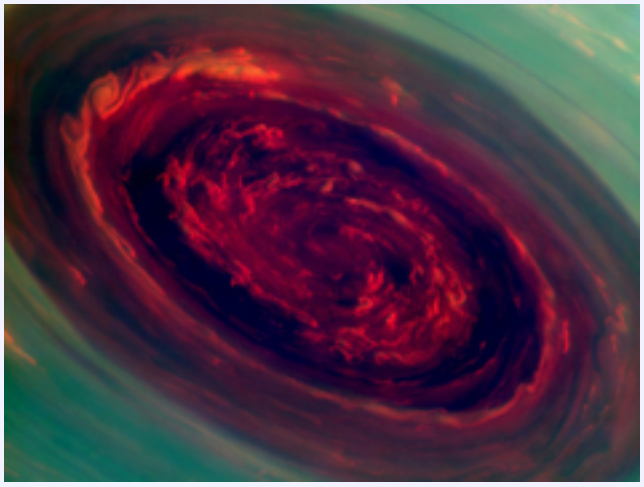
*Philippe Rips works on tensegrity. Many of his works concern torus knots and the dodecahedron. Some of these models can be made flat. A convenient assembly of a left trefoil and a right one looks like the frame of a sphere - then of course there are self-intersections.*

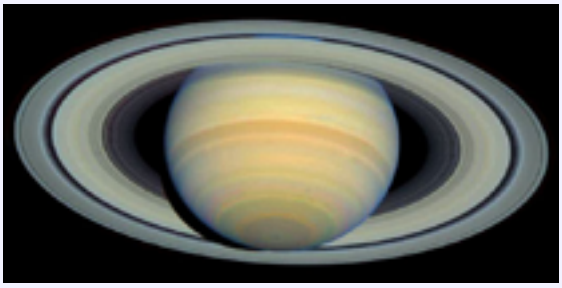
*At the moment, all these flexible models have been lent by their authors gratis. Since they can be put in the hands of visitors for pedagogical purposes, they become more or less spoiled in the long run, and then must be renewed ...*

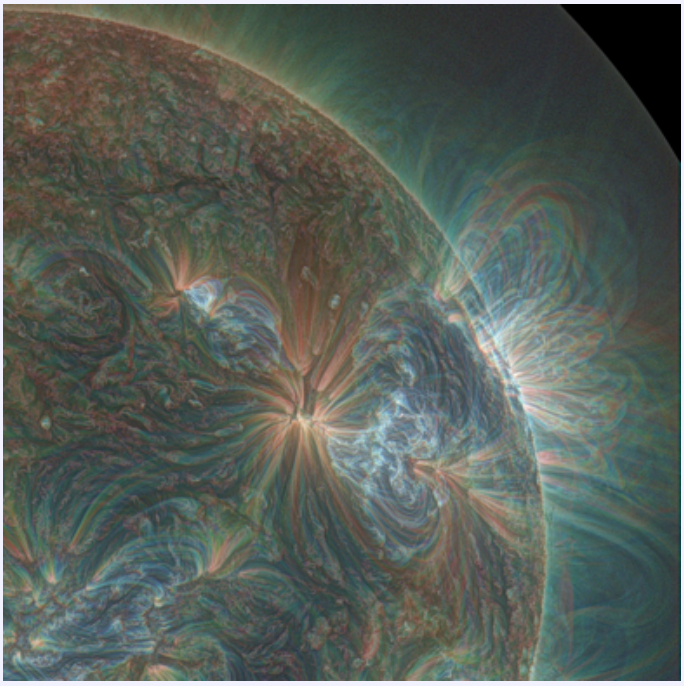
*Please excuse the low quality of the picture of the glasscase. It is difficult to do better for a few obvious reasons.*

*The reader will appreciate the beautiful «paintings» made by a famous artist, Nature. I am indebted to the physicist P. Gilad from the Weitzmann Institute who sent me the website Cosmic Wonders from which are extracted a few «mathematical» images from dynamical systems theory. Legends appear on the website.*

*Best wishes,*
*Claude*







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