



European Society for Mathematics and the Arts

## Newsletter

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*Dear Reader,*

*You may already be familiar with the list of six links between math and art. Each one refers to a natural mental activity. Alberto Giacometti put forward an other very perceptive one. In his booklet « Pourquoi je suis sculpteur ? » (« Why am I a sculptor? »), he wrote: « Art and science exist for a greater understanding » (L'art et la science, c'est tâcher de comprendre) ».*

*I believe that it is the first time an artist formulates such an aim, such a motivation to produce artworks - the knowledge of historians of art might useful. Perhaps Giacometti expresses a common unexpressed and confused feeling among many visual artists. Why do they do engage in artistic endeavor, for which reasons, what are they trying to understand?*

*Visual artists could work like most people in order to survive, participating in food production, or creating objects useful for daily life. Instead, they choose to behave differently using the privilege of their artistic gifts. Their works are in particular related to the original and singular way their senses and their mind are working. Monet, Van Gogh, Modigliani, and Giacometti had a different visual perception of their environment. In particular Giacometti said that his vision of the same person was quite different from one day to the other: « Quand ma femme pose pour moi, au bout de trois jours, elle ne se ressemble plus. Je ne la reconnais absolument plus. Justement, je travaille pour comprendre ce qui se passe . » (« When my wife poses for me, after three days she no longer looks like herself; I do not recognize her at all and I work, in fact, to try to understand how she can be. ») In other words, art tries to understand.*

*More generally, an art work is related to a psychological and physiological experiment linked to the functioning of the human body, and because artists make these experiments consciously or not, we may accept the idea that art belongs to the field of scientific activities. But in the absence of a satisfying explanation, they have to be understood as*





*preliminary scientific activities.*

*When looking on internet at mathematical or at numerical artists, we notice that most of them use standard elementary shapes, the most advanced ones coming from 2-dimensional hyperbolic geometry. As an example of such artists, I would only mention Miguel Chevalier (for instance <http://www.miguel-chevalier.com/fr/oeuvres>) whose installations in many countries are very attractive. While in the past, as Michelangelo on the ceiling of the Sistine Chapel, canvas and oil were the only available techniques to obtain some equivalent of a modern installation, the use of all recent advances in the mastering of light, hardware and software, have considerably ameliorated visual art in 3D. Besides, if, in the Chapel, religious music could exceptionally accompany and enrich the atmosphere created by the paintings, the similar modern progress in the creation and diffusion of any kind of music have given rise to a change of scale in the expression of a complete art in the sense that it gathers in a whole different or « local » arts, as opera for example. And now virtual reality is opening the road to a new vision of art.*

*During these next holidays, I hope you will be able to enjoy visiting all kinds of museums, where the temperature is more temperate than outside. By the way, I would like to mention that I rediscovered my collection (1-18) of the newspapers entitled « Survivre » (a newspaper founded by Alexandre Grothendieck, considered by many as the best mathematician of the last (20th) century). I would be happy to make a gift of the collection.*

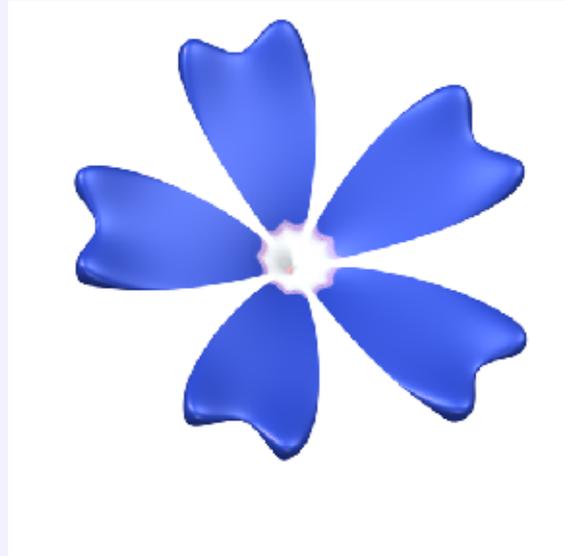
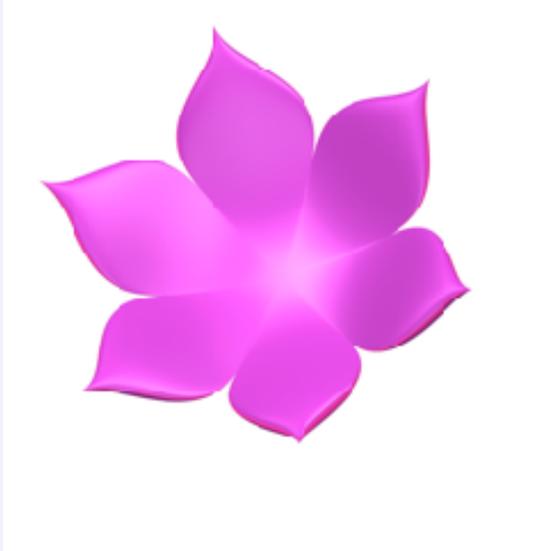
*Best wishes,  
Claude*

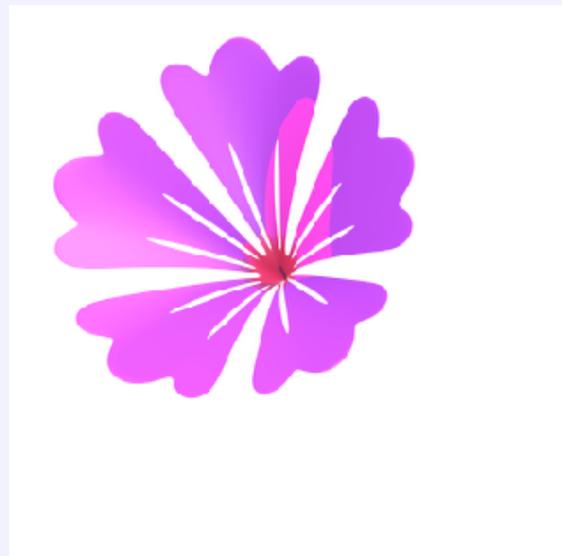
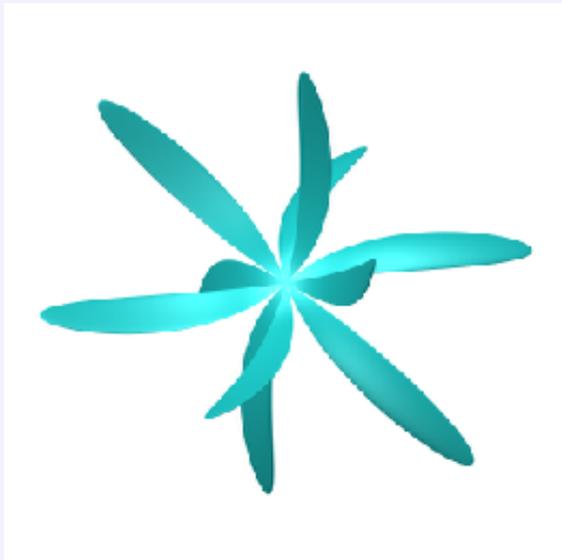
P.S. 1) The second part of the paper « Mathématiques et arts. Deux conférences » just appeared on <https://scriptaphilosophiaenaturalis.wordpress.com>.

2) Pay attention and please read first:  
<https://www.puq.ca/blogue/2011/05/mise-en-garde-vdm-verlag-ou-editions-universitaires-europeennes/> then <http://arpam.free.fr/ESC.pdf>

3) Enjoy Patrice Jeener's Garden. His tools for getting these summer flowers are algebraic equations and the German software « Surfer ». A first equation,  $E1 = 0$ , gives the cylindrical projection of the flower on an horizontal plane, the second equation,  $E2 = 0$ , is a surface of revolution, in some cases a paraboloid of revolution, whose intersection with the cylinder gives a representation of the flower ( $E1 + E2 = 0$ ).







$$[(x^2+y^2)^3+100*(x^2+y^2)^2+100*z^2]^2-[x^5-10*x^3*y^2+5*x*y^4+200*z*(x^2+y^2)]^2=0$$

$$[(x^2+y^2)^8-4*(x^5-10*x^3*y^2+5*x*y^4)^3+2*(x^2+y^2)^5*(x^5-10*x^3*y^2+5*x*y^4)]^2-4*(x^2+y^2)^{15}-100*(z^3-x^2-y^2)^2=0$$

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