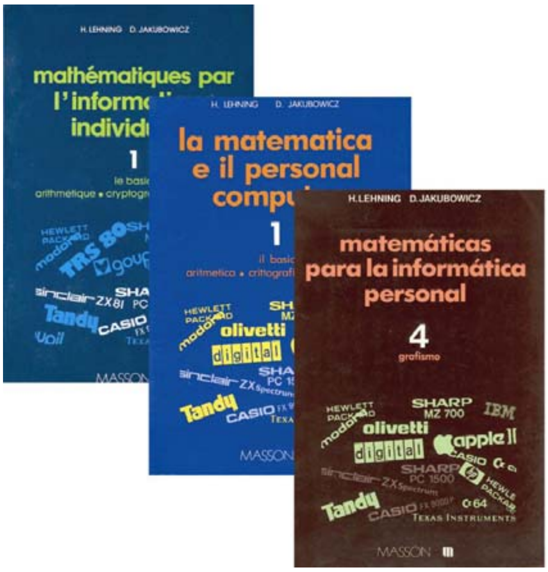
Art and the popularization of Mathematics

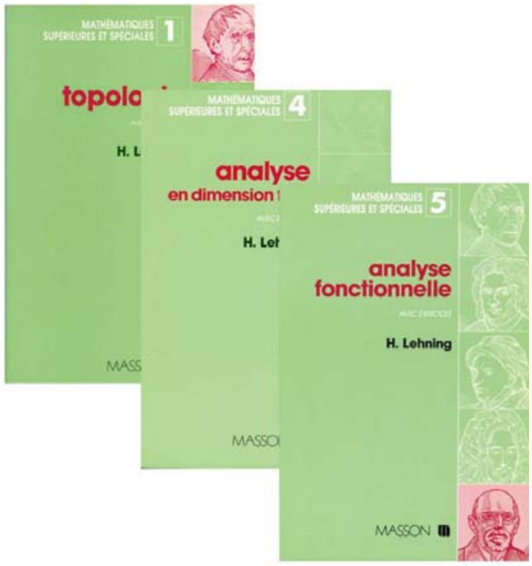
Text, paintings & photographs by Hervé Lehning
Editor of Tangente (a French Maths Magazine)
www.lehning.eu
lehning@noos.fr

Topological ice rock on a beach of Greenland

Quick presentation of the author : past

Math studies … then undergraduate textbooks.

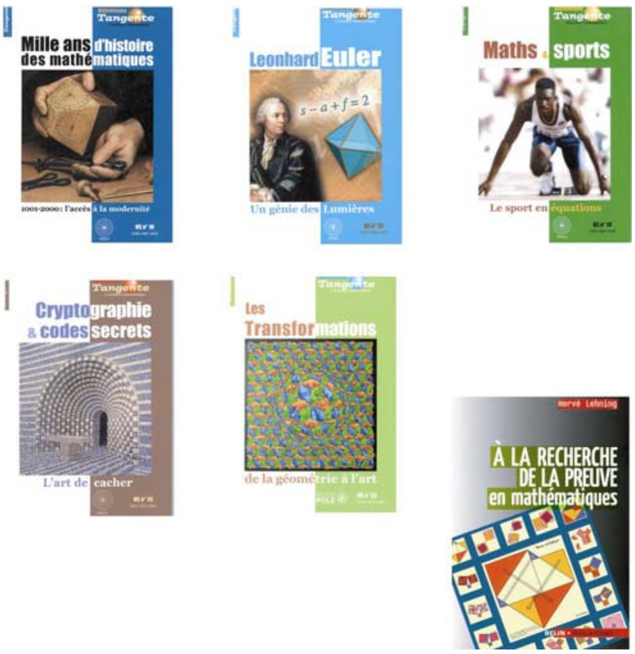




Some of them are still in use.

Present and future

Popularization of mathematics



first through editing … and then through the art, subject of this article.

Popularizing is not teaching

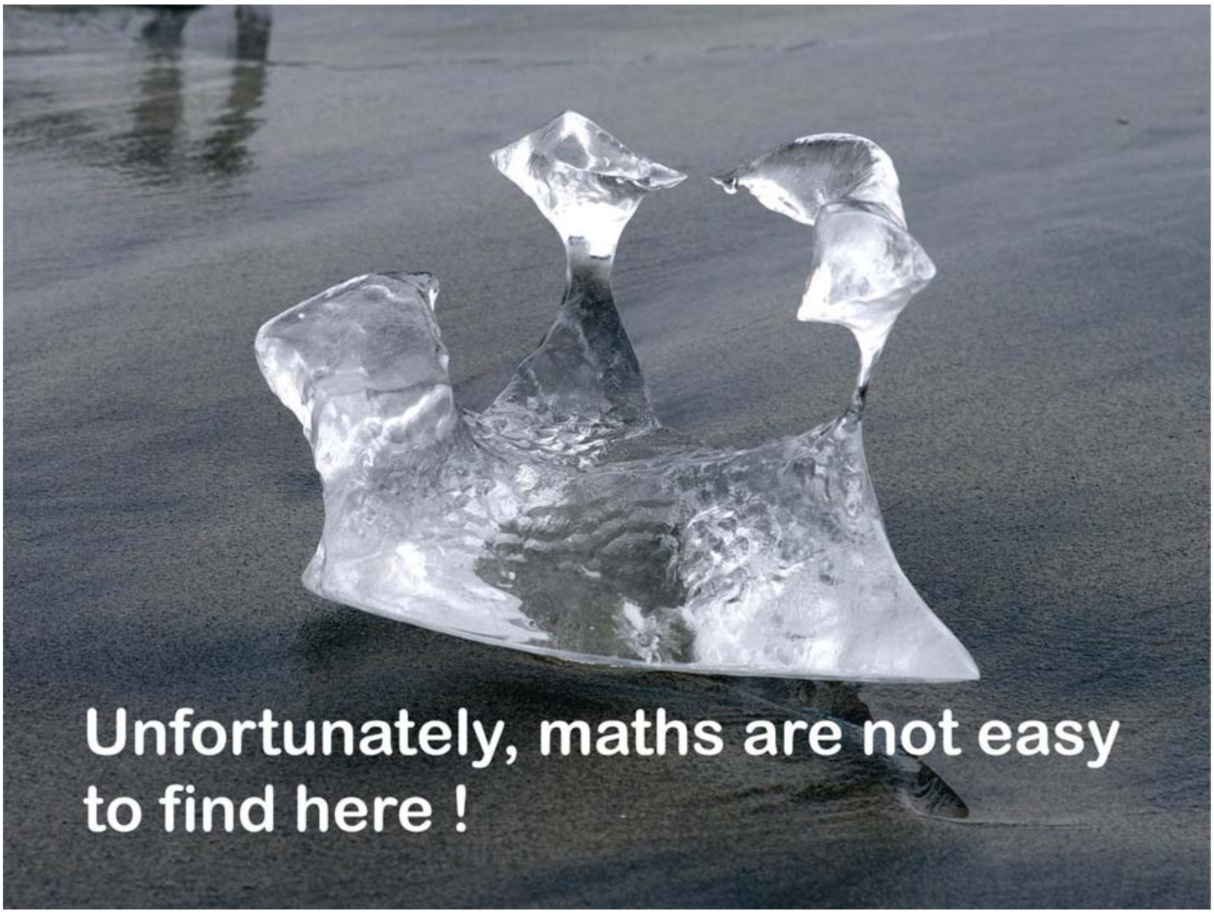
The main point is to realize that popularizing is not teaching. Making the reader or the viewer hungry is better than overfeeding him. For that a puzzling image can be a good solution.

Ice rock and its reflection on a beach of Greenland

… if there is an explanation somewhere.

At least, we have to tackle the question: what is the mathematical goal?

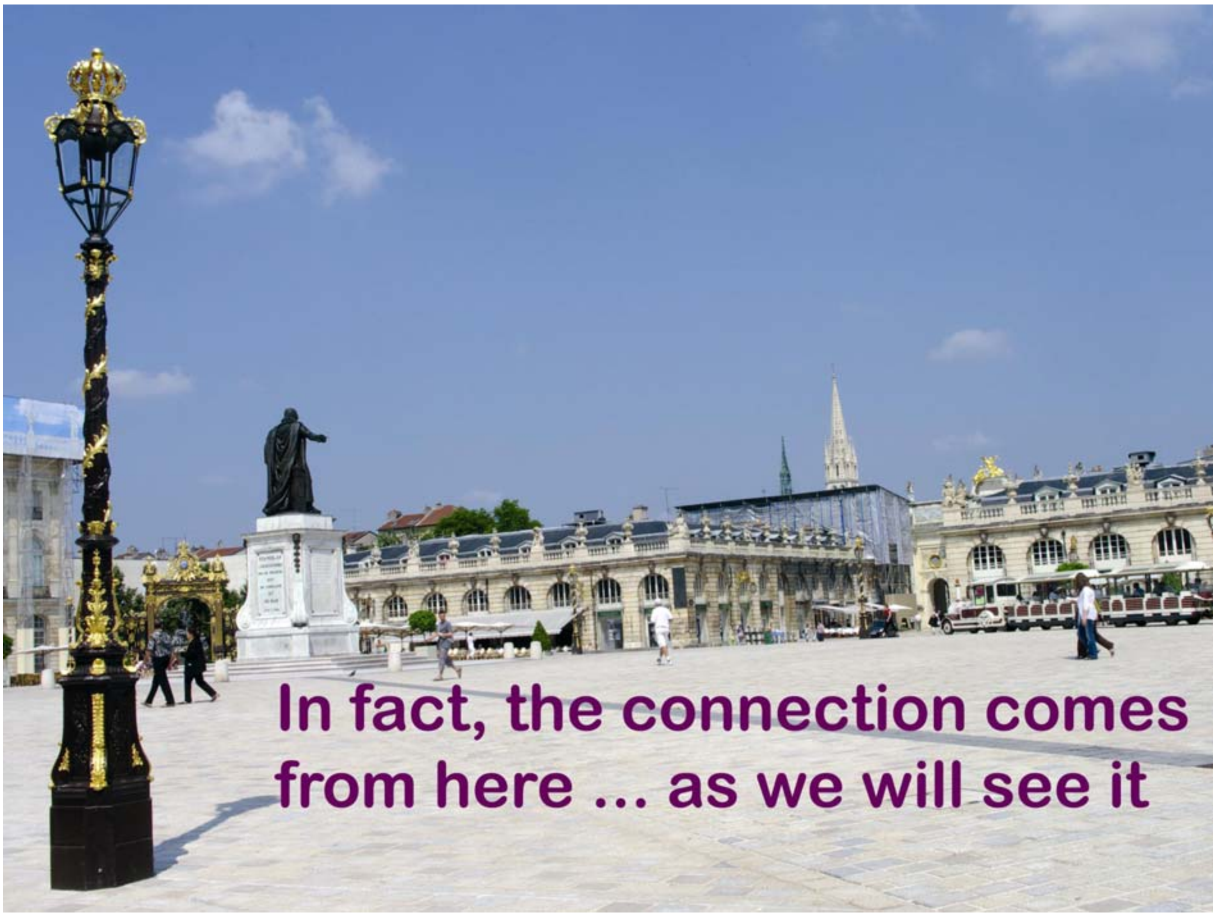
Puzzling is not enough



Topological ice rock on a beach of Greenland

In fact, this image can just be used to illustrate topological properties of surfaces … or to introduce the link between my art, maths and glass.

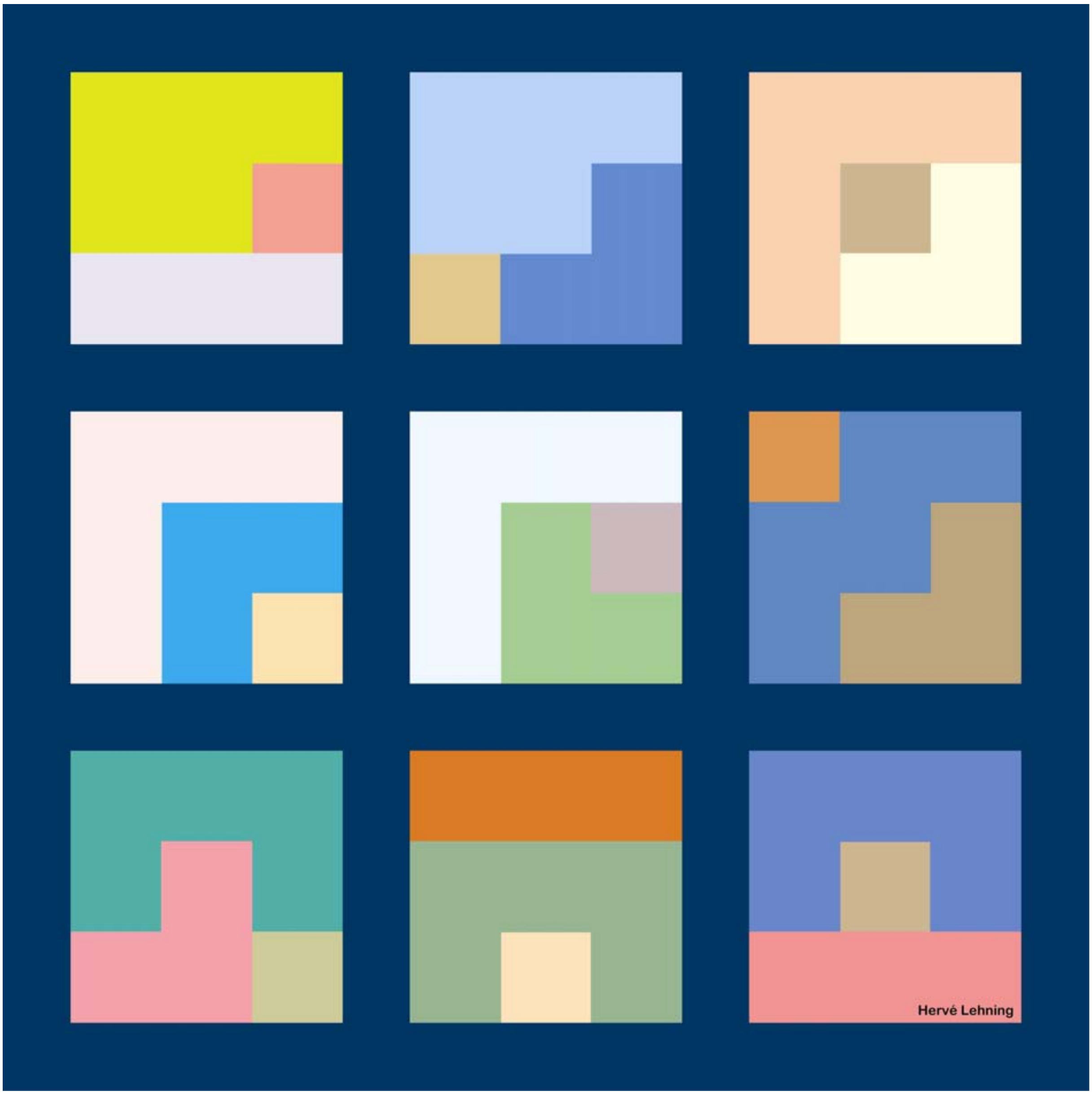
Maths, ice and art.



Perspective on Stanislas' square, in Nancy.

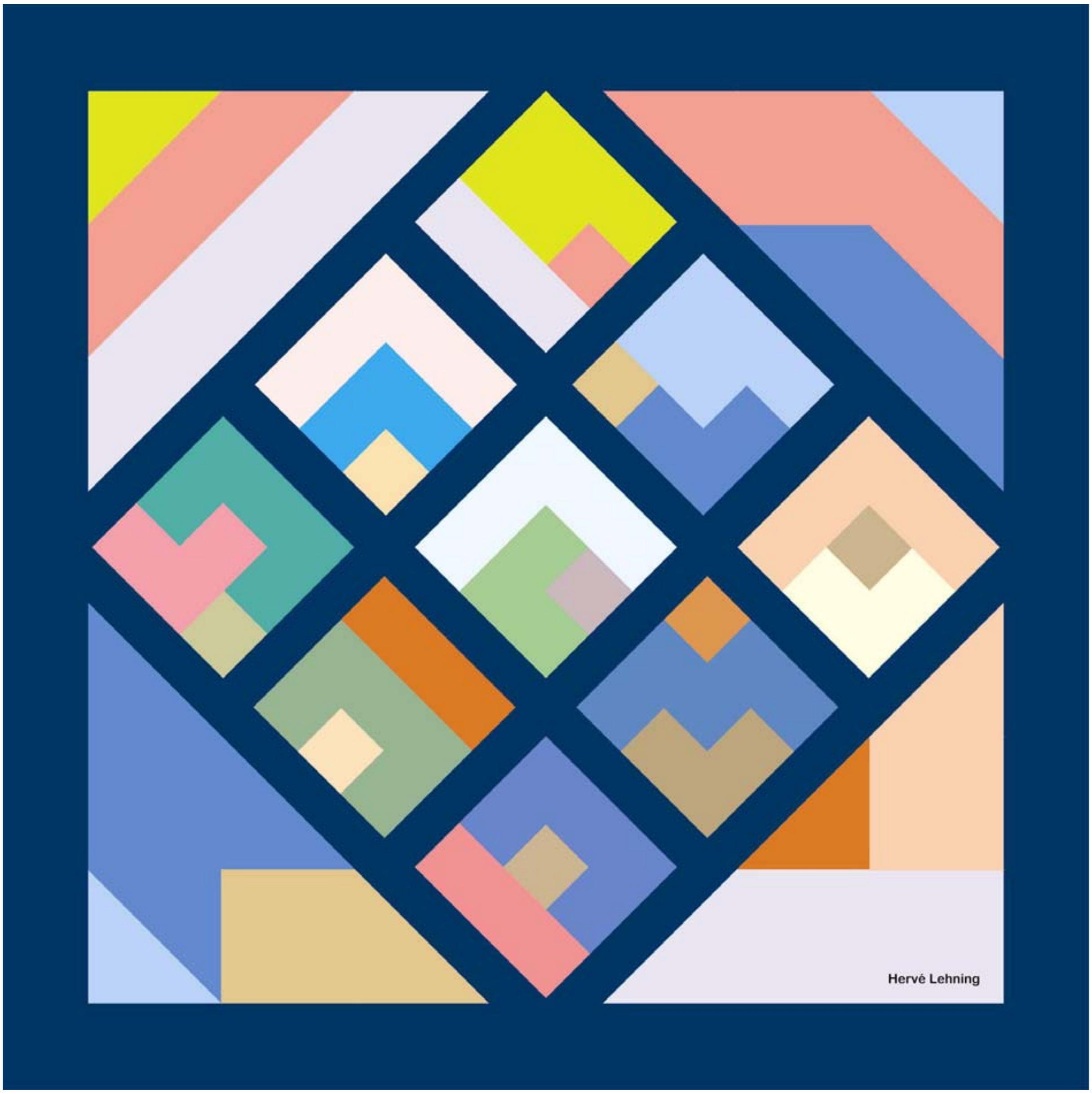
Nancy is the capital city of art nouveau, the town of Bourbaki group … and my birth place, we will see its influences on my work.

A piece of abstract art?



1 + 3 + 5 = 9

The title of this painting shows that there is a mathematical idea behind it.



1 + 3 + 5 = 9

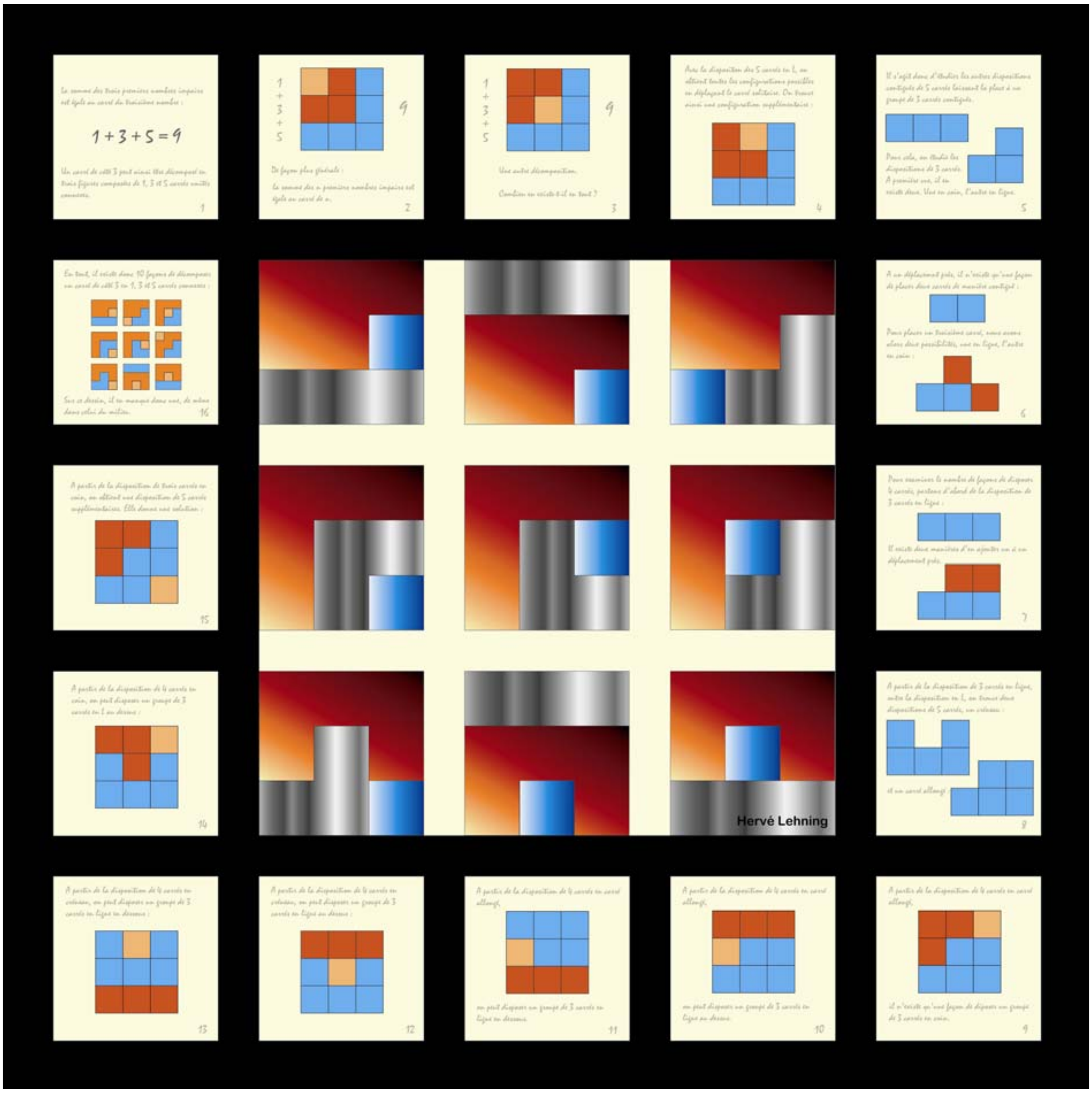
The same idea with triangles as well as squares.

Figuration of abstraction

Is it abstract art of figurative art?

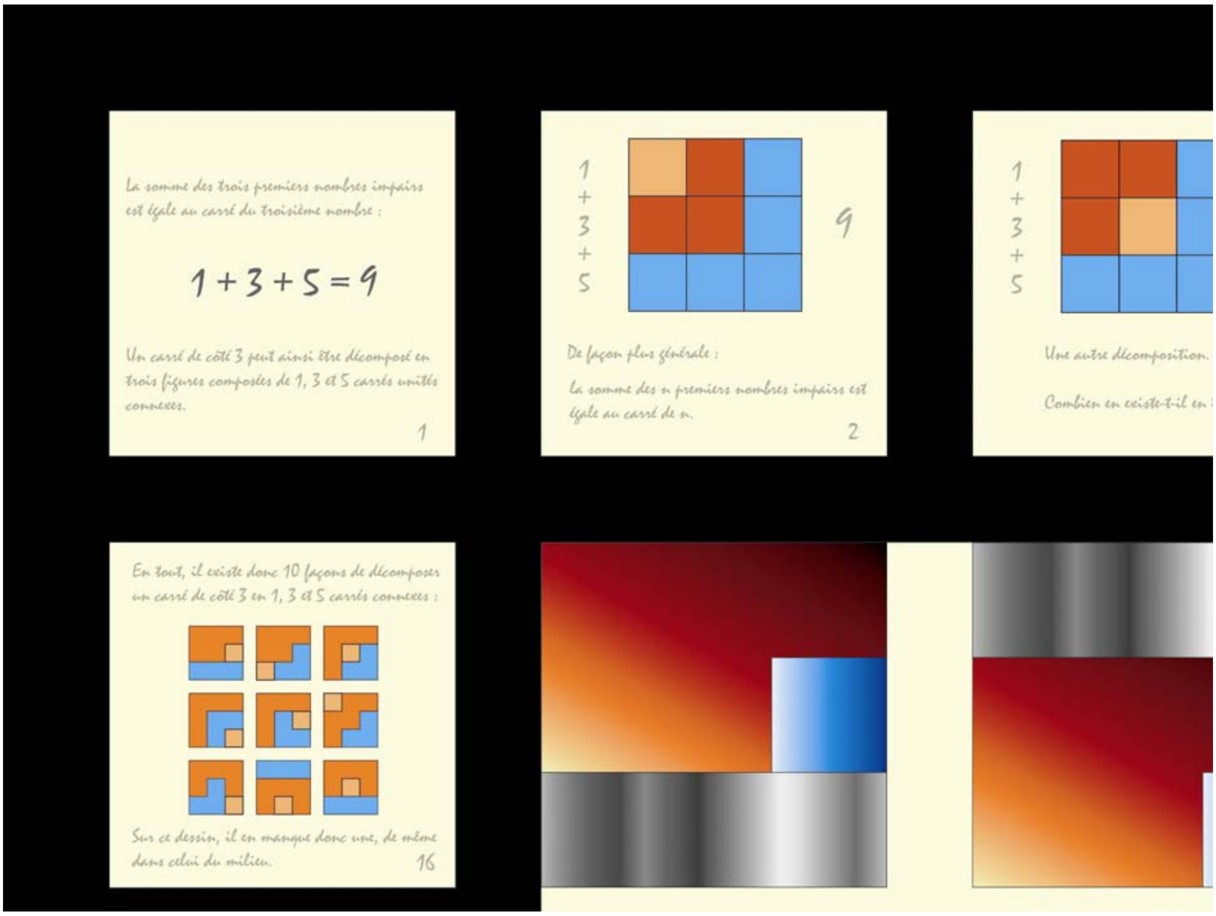
For me, the answer is: figurative art … thus my art is **figuration of mathematical abstractions**.

Some paintings put this in evidence with explanations presented as a decorative framing.



Small maths in margin

As a student, I used to sketch my professors in the margin of my notes … before starting to make maths in the margin of my drawings. Nowadays, I put small maths articles as a frame of some of my paintings, not all of them. It is to make the figurative side of my paintings explicit.



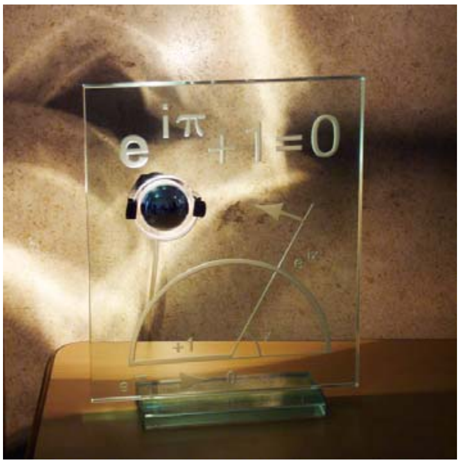
Detail of 1 + 3 + 5 = 9 painting

Those explanations are a true proof of the exhibited result: the ways of arranging 1, 3 and 5 adjacent squares in a 3x3 square (up to symmetries).

Link between ice rocks, Nancy, maths and my art

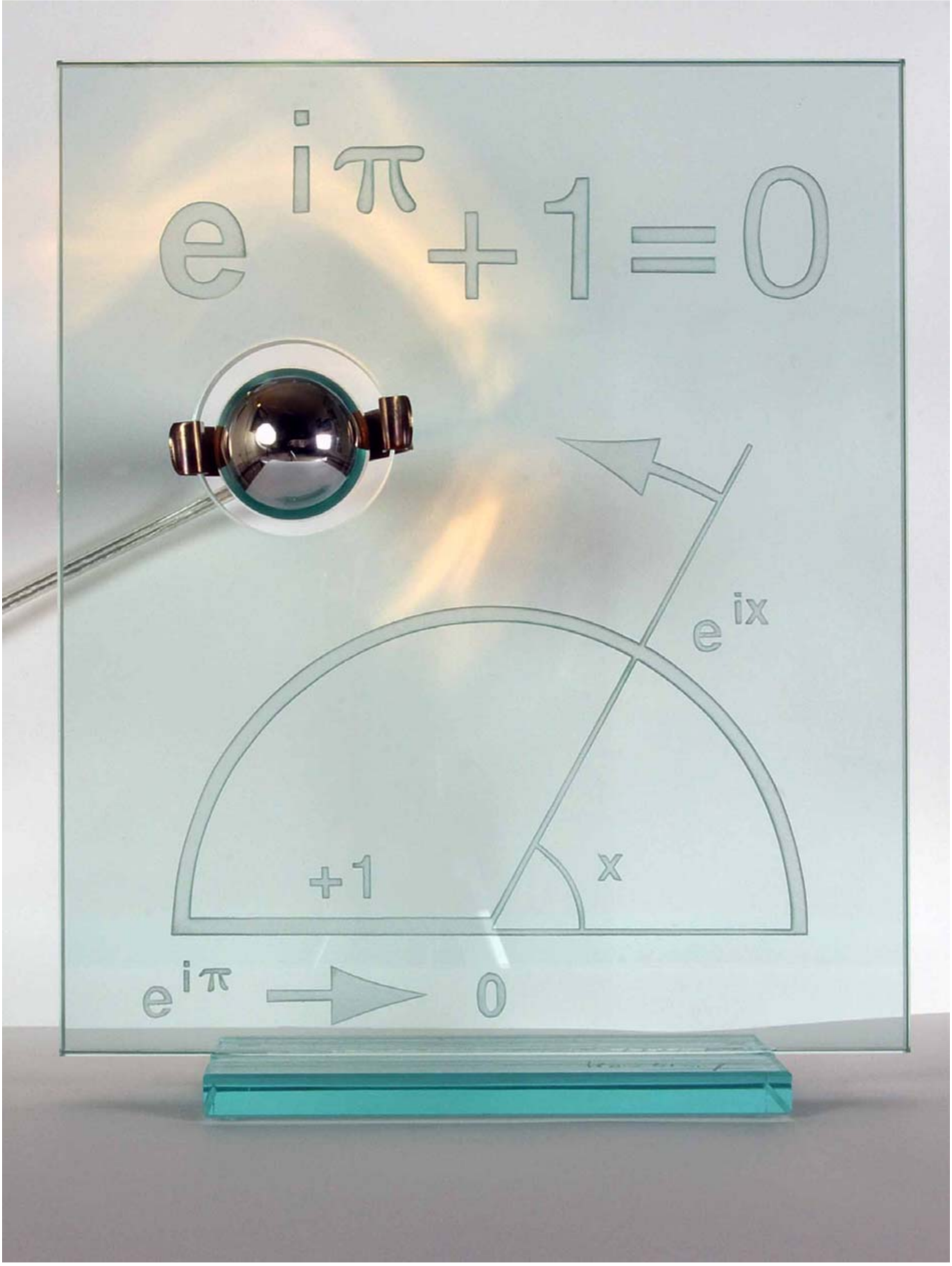
A natural Daum on a beach of Greenland

Nancy is the city of Gallé and Daum, great masters of glass, who gave me the taste of light captured in glass. This explains my series of lamps presenting maths formulas engraved in glass.



Lamp in homage of Euler in its natural frame

Lamp in homage of Euler



Lamp in homage of Euler and his famous formula.

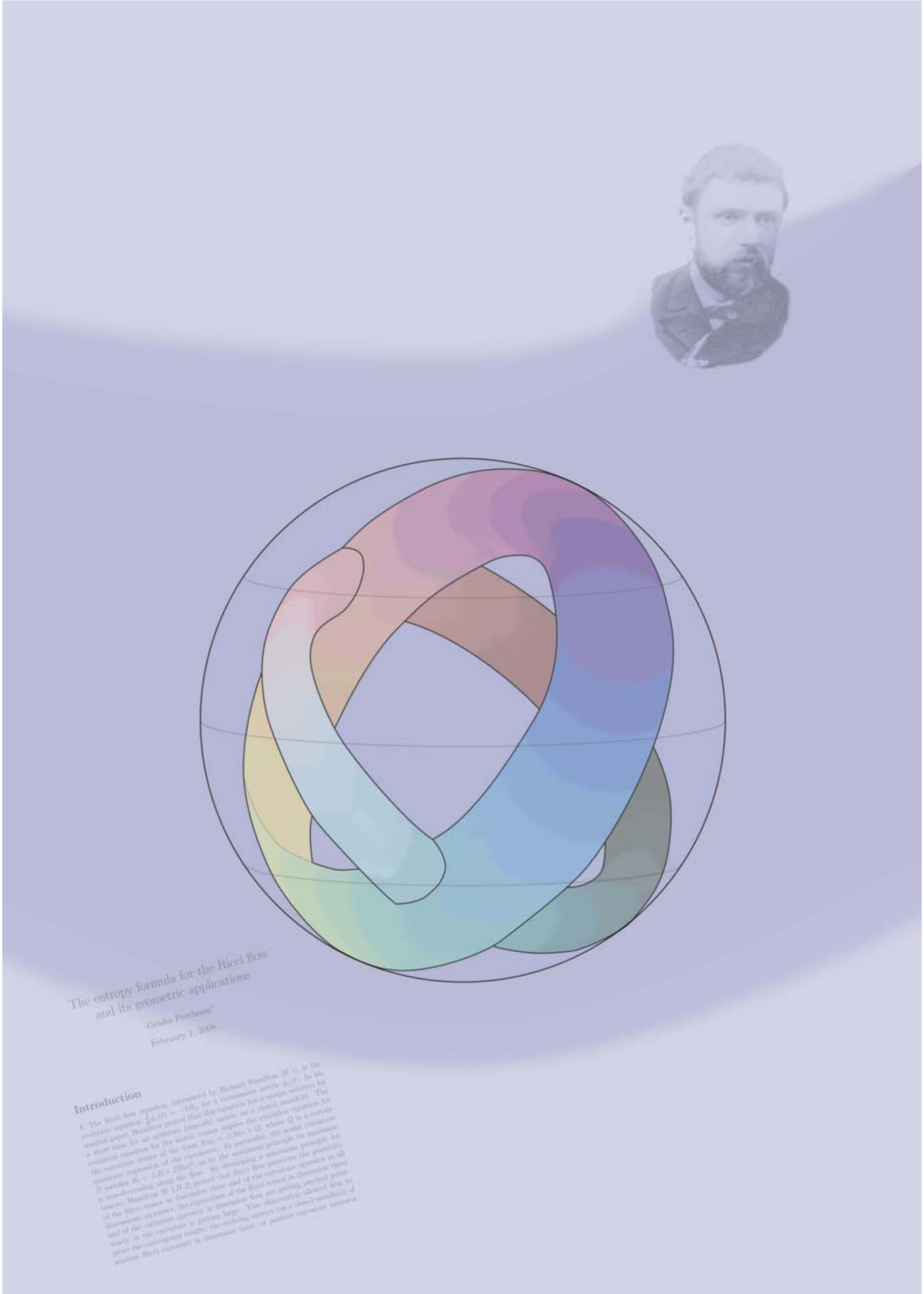
The equation of heart

Gift for a math lover

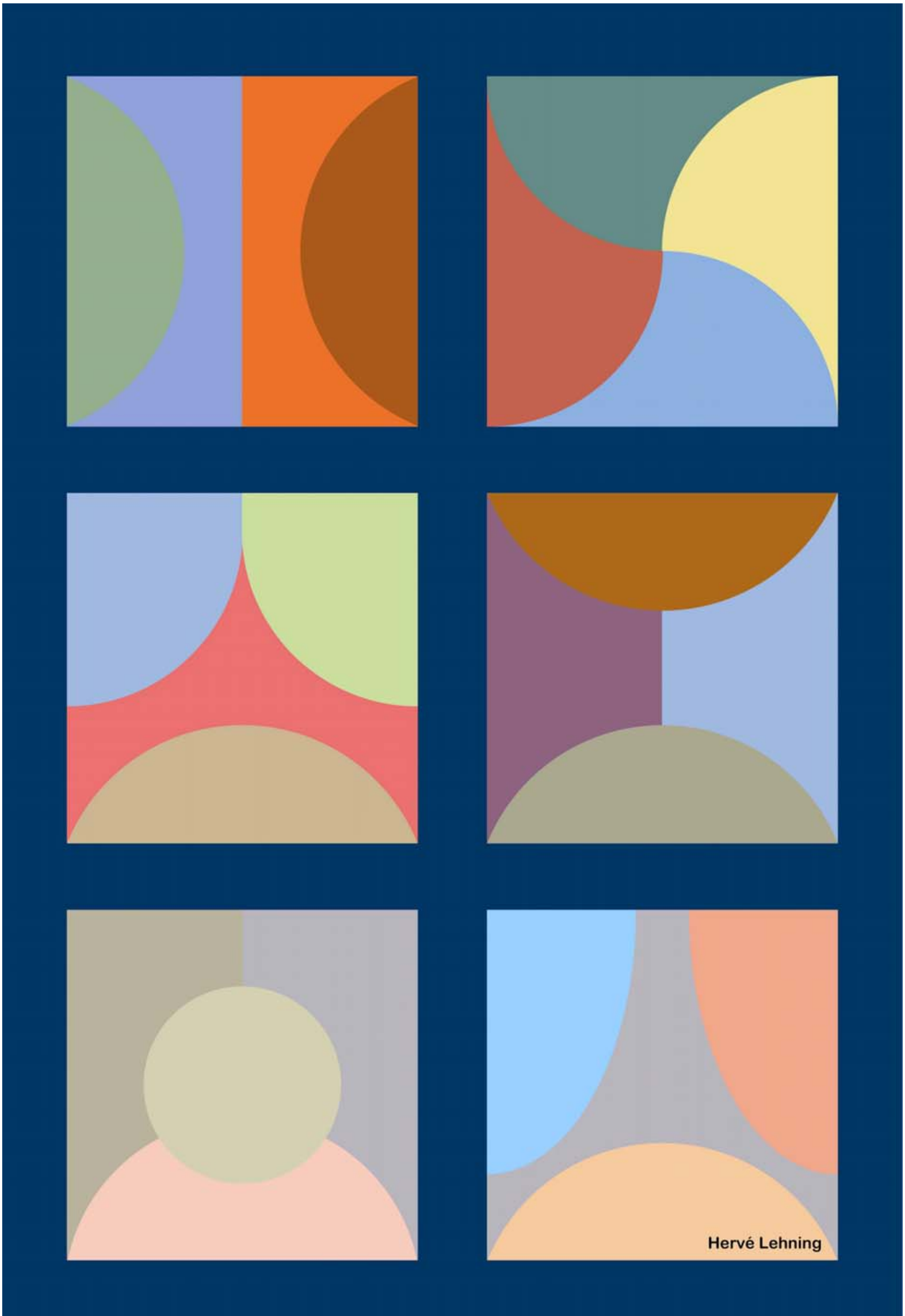
Gallé, Daum and the school of Nancy.

Back to the origins. Nancy is known for the glass works of Gallé and Daum (on the right a hyperboloid of one sheet by Daum), as the place of birth of Bourbaki group and of the author of this text.

According to the legend, the name of the group came from a statue of general Bourbaki somewhere in Nancy. Unfortunately, it does not exist. In compensation, one can find a statue of Émile Coué, the famous inventor of the Coué's method. According to it, believe it hard is enough to make it true (up in the middle). If you have a look at the lamp on the left, you will find a way of squaring the circle, which is possible in Nancy, of course.



Homage to Poincaré (from Nancy) and to his conjecture, proved by Perelman.



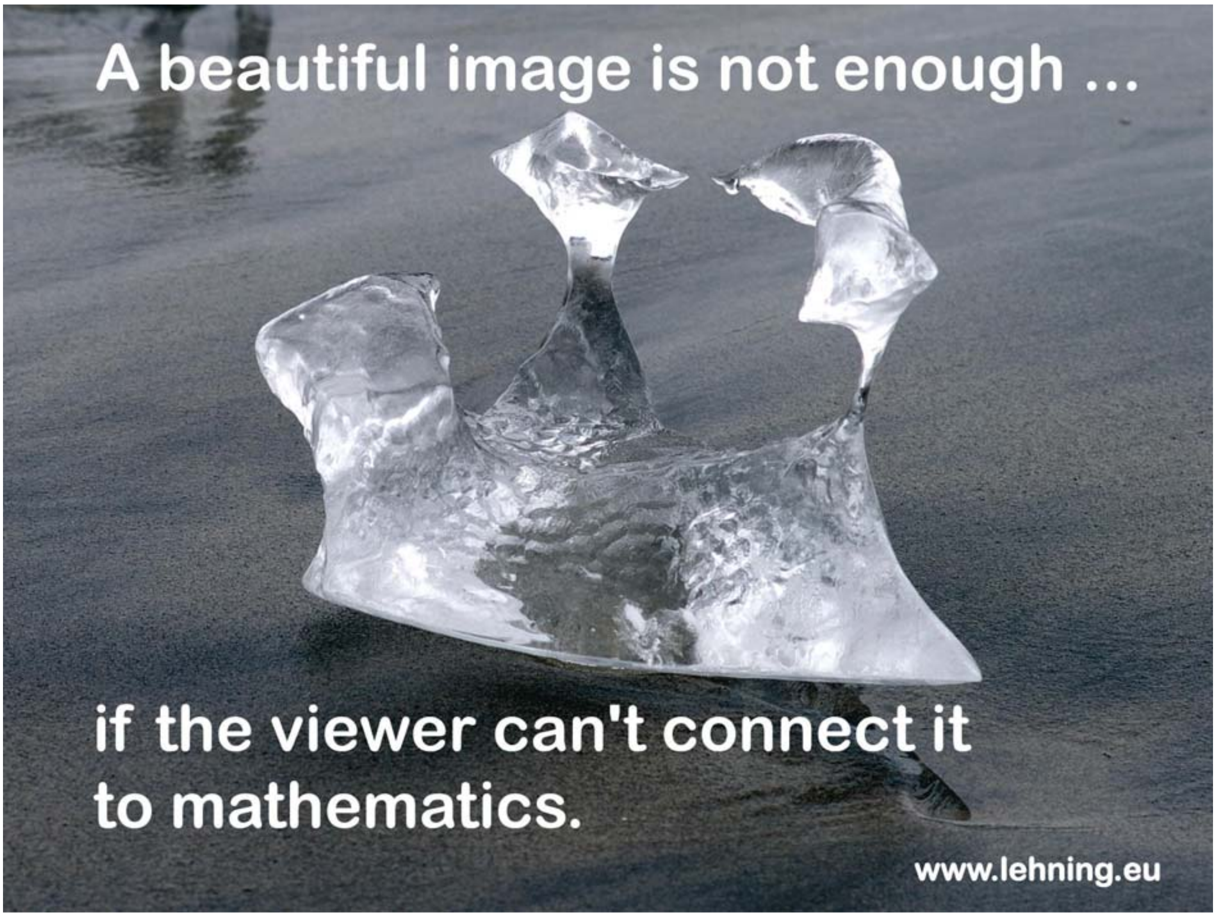
A painting with its title but without any explanation: Neighbourhoods.

As a conclusion

Gokyo lake (5000 m) in the Himalaya

The duality between art and maths illuminates mathematics, as here with this symmetry on the Gokyo lake.

But …



If we want to use it to popularize maths, the viewer has to be able to connect it to mathematics.

Unfortunately, maths are not easy to find here.