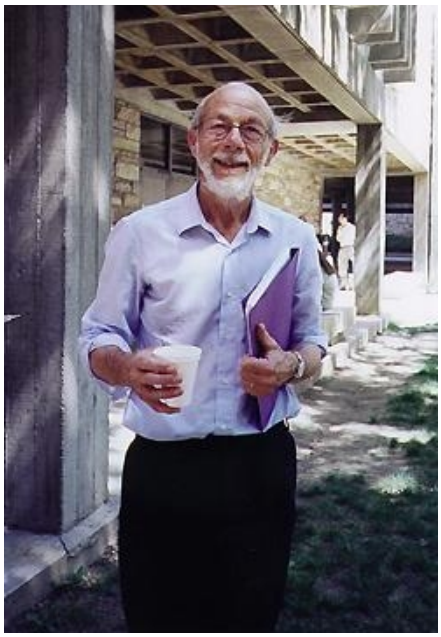
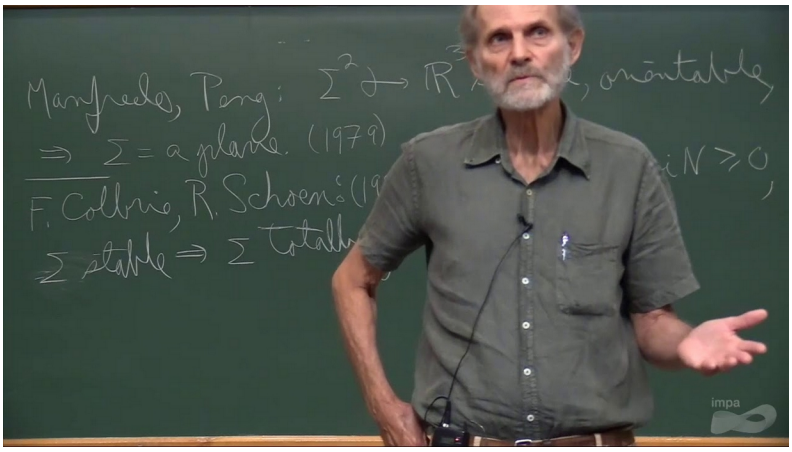
Mathematician

Vocation

My initial vocation, from 4 years old to 14 years old, was to be a veterinarian, and I'm still not sure I made the right choice! I always blame myself a little for having “abandoned” the animals, so mistreated by the human species.
From that age I wanted to do math, without knowing that research existed, and no knowing what it consisted of. A first year high school teacher told me, at the end of a lesson, that there were people who “do mathematics” at university. I think of this moment every time I speak to middle or high school or even college students.

When I started my thesis, I saw mathematicians having fun like children, listening and respecting beginners as long as they had something to say. It enchanted me, and I really wanted to be part of this community. I admired, mathematically but above all humanly, Harold Rosenberg and André Haefliger.





Mathematics

I often say that mathematics is the simplest thing in the world. Indeed mathematics is the only place in life where things are divided into 4 categories:

true, false, we don't know, undecidable.

I know that not everyone agrees with this statement, and okay, we need to add a category: a proposition that part of the community has agreed to put in the "true" category but whose proof is of a so long and complex that almost no one understands it. There are some “theorems” like this, which we are not allowed to question out loud but which no one knows if they are really true. But you just have to be honest to include this category in the “we don’t know” category.
But everywhere else, things are only ever true up to a certain point, they are often both true and false depending on the point of view, nothing is ever definitive, is never a truth on which we can build solid, and they are often negotiable.

You see two people who disagree. They argue, call each other names, and each puts forward arguments that the other refutes. Then one of them listens to an argument from the other, looks up and says “Ah! It's true ! You're right ! THANKS ! ". So they are mathematicians.

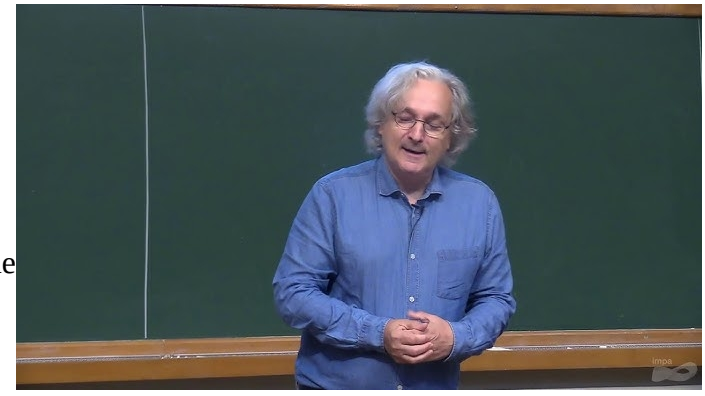
At one time the earth was flat. Then it was round and the universe rotated around it. Then it rotated around the sun and on itself, and the sun itself belonged to a group of billions of suns forming a galaxy rotating around its center. Then space mixed with time to become a space-time where time did not flow in the same way for everyone... science has always evolved, certainties have been shattered by experiences, new These theories caused their inventors to be accused of heretics before being adopted to form a new dogma.
The Pythagorean theorem is still true, unchanged. The square of the hypotenuse is always, and will always remain, the sum of the squares of the other two sides. With the right assumptions of course. We can invent geometries for which this is not true. There are triangles on the (roughly round) earth with three right angles. But a theorem, which comes with its precise hypotheses and its conclusion, if it is true, it will remain true for eternity... did it exist before humanity, and will it survive humanity, I leave you answer this question.

In mathematics, the hardest part is often not knowing whether something is true or false. The hardest part is knowing if this thing is interesting. Because that's not mathematics.

What is it for?

Every mathematician must answer this question often.

For my part, I do not believe in technical progress. I mean that I don't believe that technical progress makes life more beautiful. Philosophy and art may have this possibility. Therefore, the question "what is math for?" For a long time my response was "I like math when it's useless".
This response was more provocative than sincere. However, I have an essentially aesthetic vision of mathematics:
"there are beautiful results, there are beautiful demonstrations and ugly demonstrations."
A simple (in hindsight) but new idea, it's something fantastic! What is it for? this makes no sense: it is necessarily important, because it can be applied to other frameworks! When every person, upon understanding the idea, says to themselves "damn, but of course!", then the goal is achieved.
On the other hand, a long, technical demonstration that solves a problem accomplishes nothing other than saying "the problem is solved! ". If the problem was interesting in itself, so much the better! Otherwise...



The whole art of a mathematics presentation is to bring out the beauty of the mathematics that we are presenting. Beauty perhaps in the question, or in the proof. Etienne Ghys is the mathematician who made me dream the most: his lectures are like a film from which you come away stunned.

So you're doing calculations?

Carrying out an operation to calculate your taxes is not doing mathematics: it is applying a cooking recipe... On the other hand, the inventors of this ancient recipe did, for a moment, mathematics.
History or legend says that geometry was born from the difficulty of fairly restoring fields after the floods of the Nyl: measuring the surface of a field by following the law learned at school is not making mathematics: is applying mathematics. On the other hand, the discoverers of the laws making it possible to calculate the area of a rectangle, a rhombus or a trapezoid, they did mathematics!