

Members of the Faculty, Ladies and Gentlemen, I am very happy to welcome you to the Pauli lectures of 2021. The lecture series is named after Wolfgang Pauli who was Professor of Physics at ETH Zurich from 1928 until his death in 1958. Pauli made great contributions to the development of Quantum Mechanics. He was awarded the Nobel prize in 1945 for his famous Pauli Exclusion Principle.

By tradition, the Pauli lectures rotate among the disciplines of biology, physics, and mathematics. We are very fortunate this year to have Cédric Villani as our speaker in Mathematics.

Villani received his PhD in 1998 in Paris where he started his study of Partial Differential Equations involved in statistical mechanics -- and which eventually led to a Fields Medal for Villani in 2010 for his work on Landau damping and the Boltzman equation. A second career started for Villani in 2017 when he was elected member of the French parliament representing a district in the Ile de France. I do not know whether we have had a sitting politician deliver the Pauli lectures (but certainly we have not had many). Villani is well known for his work on the strategy of the French government in the areas AI and climate change. He is a Knight in the Legion of Honor, member of the French Academy of Science, and scientific advisor to the Pope.

He has made a great effort to explain the mathematical endeavor to a general audience (including writing a rather unique book about his personal experience -- The Birth of a Theorem -- which has sold hundreds of thousands of copies). I particularly recommend his TED lecture in which he answers the question "what is so sexy about mathematics?".

It is hard to imagine how much creative energy Villani has if you have not spent time with him. I have seen him simultaneously discuss mathematics, type the record of the discussion, engage in 1-2 side electronic conversations, and on top of all that, plan the evening activity of a film society that he led in Paris. And I have not even mentioned the spiders.

We are very happy to have Cédric Villani here today to present his first Pauli lecture: "Boltzman's theory, or relaxation by confined entropy increase".

[RP, 14 December 2021]