cv Xavier Gérard Viennot

July 2017

1965-1969 student Ecole Normale Supérieure Ulm , Paris.
from 1969 till today: **Researcher at CNRS** (National Center for Scientific Research, France)
Researcher Junior (1969-1983), from 1983: Research Senior ("Directeur de Recherche"),
Successive Institutions in France: University of Paris, Ecole Normale Supérieure Paris, University of Strasbourg and from 1980, LaBRI at University of Bordeaux. France,
present position: Emeritus Research Director (exceptional class) **at CNRS.**

Distinctions and honors
- PhD 1971, University of Paris
- "Thèse d'Etat" (or "Habilitation") 1974, University of Paris,
both under the supervision of M.P.Schützenberger, from the french *Académie des Sciences*
- A. Châtelet medal (for my work in algebra), 1974
- Silver Medal at CNRS, 1992 (for my work in combinatorics and control theory)

Visiting Professor positions
- visiting professor, UCSD, USA, spring 1981, spring 1984 (3 months each time)
- visiting professor, UQAM (University of Quebec at Montreal), Fall 1983 (2 months), 1987-88 and 1992-93 (1 year each time)
- visiting professor, University of Wuhan, China, 1986 (2 months) and Nankai University, Tianjin, China, 1996 and 1999 (1 month each time)
- visiting researcher, TIFR, Mumbai, Dpt of Theoretical Physics, 1986 (2 months), 2010 (1 month)
- visiting professor, IMAFI, Universidad de Talca, Chile, Dec 2010-January 2011 and Dec 2013-January 2014 (2 months each time)
- distinguished visiting professor, IIT Bombay, India, January-February 2013 (2 months)
- guest professor, IIT Madras, India, January-March 2015
- adjunct professor, IMSc, Chennai, India, January-March 2016 and January-March 2017

Visiting Fellow positions
- NSF fellowship UCSD (University of California at San Diego), USA, 1978-79 (1 1/2 year)
- *"Megyunya distinguished fellow"*, 1996 (3 months), Center for Statistical Mechanics, University of Melbourne, Australia
- MSRI (Mathematical Science Research Institute, Berkeley, USA, 1996 (one month)
- CMM, (Center for Mathematical Modelisation), Santiago, Chili, 2003/04 (2 months)
- Mittag-Leffler Institute, Sweden, 1992 (one month) and 2005 (one month)
- Isaac Newton Institute for Mathematical Science, Cambridge, U.K., 2008 (one month)
- E. Schrödinger Institute for Mathematical Physics, Vienna, Austria, 2008 and 2015 (one month)

Researches

The work of X.Viennot is in combinatorics with interactions and applications to pure and applied mathematics, computer science and physics. He founded in 1980 and directed for 20 years in Bordeaux a combinatorics center, well known internationally.

The main researches domain of X.Viennot is enumerative, algebraic and bijective combinatorics. Combinatorial mathematics is nowadays a very active field, knowing a spectacular *Renaissance*. A new "paradigm", called *"bijective paradigm",* is revolutionizing classical

combinatorics, and thus certain parts of pure and applied mathematics and theoretical physics. This attitude is the specificity of the Bordeaux school of Combinatorics. The researches of X.Viennot are pluridisciplinar, and he applied or made some interactions between enumerative and algebraic combinatorics with some parts of pure mathematics (algebra, classical analysis, q-series, orthogonal polynomials, special functions, ...), theoretical computer science (algorithmics, data structures, automata and language theory), computer graphics (image synthesis of trees and landscapes), control theory, theoretical physics (exactly solved models in statistical mechanics, dynamical systems far from equilibrium such as PASEP, fractal physics and Lorentzian quantum gravity), molecular biology (ARN's secondary structures). X.Viennot was responsible (2006-2010) for the ANR interdisciplinary research project MARS (mathematics, computer science, physics) *"Combinatorial Physics: Around alternating sign matrices and the Razumov-Stroganov conjecture on spins chains model"*.

Papers, Books and conferences

X.Viennot has written two books and published about 95 research papers in international journals in mathematics, computer science and physics. He gave several hundreds invited conferences, communications and colloquia in various countries: Australia, Austria, Canada, China, Chile, Croatia, Czechia, Denmark, England, France, Germany, India, Indonesia, Israel, Island, Italy, Portugal, Russia, Spain, Sweden, Switzerland, Singapore, South Korea, United States, Venezuela.

Mention for mathematics: BOURBAKI seminar, for computer science: SIGGRAPH, and for Physics, conference ICTS, TIFR Bangalore 2012 "Random matrix theory and applications ».

In particular X.Viennot gave many conferences in India (TIFR and IIT Bombay, IIT Madras, CMI Chennai, IMSc Chennai, IISc Bangalore, IISER Pune, Ramanujan Institute Chennai, University of Puducherry and of Kochi, New-Delhi (University and Indian Statistical Institute), Amrita University at Coimbatore and at Armritapuri).

Graduate Courses Courses website: http://cours.xavierviennot.org

X.Viennot have given many courses in various universities and research centers: during ten year at ENS (Ecole Normale Supérieure, Paris), graduate classes at Universities of Paris, Orsay and Bordeaux, in physics at the CEA Saclay, and also abroad: San Diego (UCSD), Montreal (UQAM), Firenze, Mumbai (TIFR and IIT), Chennai (CMI, IIT and IMSc), Tianjin, Melbourne, Caracas .For many years he contributed for the development of a combinatorics center in Firenze (Italy) and in Montreal with the creation of LACIM (Laboratory for Combinatorics and Mathematical Informatics). He also helps for the development of a combinatorial center in Nankai University, Tianjin, China. X.Viennot had directly 11 PhD students, and contributed to the education of another dozen. By filiation from master to students, he is "great-grand father". Some of his former students are Professors or Research Director at CNRS.

Popularization of Science

One of the activities of X.Viennot is also the popularization of mathematics and more generally science. The "bijective paradigm" in combinatorics allows him to give the passion for contemporary research to colleges professors and students in France, Quebec and India, and also with "wide audience" conferences in various country including Australia, Chile and India. He also made some experiment at primary schools. With M.Pig Lagos, story-teller and the violinist G.Duchamp he created the association "Cont'Science" for the promotion and divulgation of science, associated to tales of the world and music.

web site: www.labri.fr/perso/viennot/ or www.xavierviennot.org/xavier