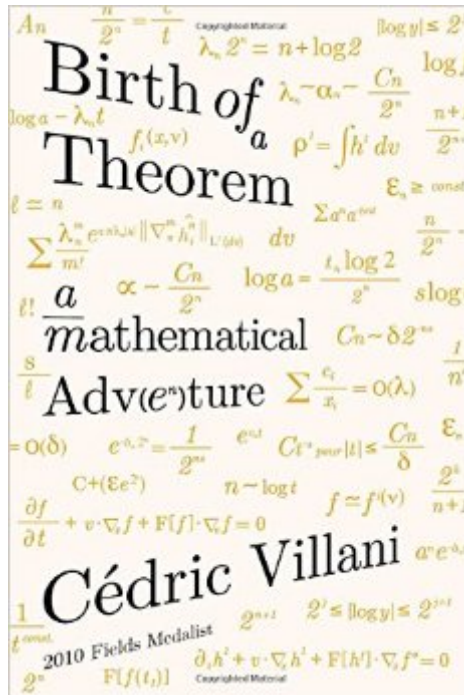


## The book was found

# Birth Of A Theorem: A Mathematical Adventure



## Synopsis

In 2010, French mathematician Cédric Villani received the Fields Medal, the most coveted prize in mathematics, in recognition of a proof which he devised with his close collaborator Cécile Mouhot to explain one of the most surprising theories in classical physics. *Birth of a Theorem* is Villani's own account of the years leading up to the award. It invites readers inside the mind of a great mathematician as he wrestles with the most important work of his career. But you don't have to understand nonlinear Landau damping to love *Birth of a Theorem*. It doesn't simplify or overexplain; rather, it invites readers into collaboration. Villani's diaries, emails, and musings enmesh you in the process of discovery. You join him in unproductive lulls and late-night breakthroughs. You're privy to the dining-hall conversations at the world's greatest research institutions. Villani shares his favorite songs, his love of manga, and the imaginative stories he tells his children. In mathematics, as in any creative work, it is the thinker's whole life that propels discovery – and with *Birth of a Theorem*, Cédric Villani welcomes you into his.

## Book Information

Hardcover: 272 pages

Publisher: Farrar, Straus and Giroux; 1st Edition edition (April 14, 2015)

Language: English

ISBN-10: 0865477671

ISBN-13: 978-0865477674

Product Dimensions: 5.8 x 1 x 8.5 inches

Shipping Weight: 12.8 ounces (View shipping rates and policies)

Average Customer Review: 3.8 out of 5 stars – See all reviews (32 customer reviews)

Best Sellers Rank: #61,121 in Books (See Top 100 in Books) #56 in Books > Science & Math > Mathematics > History #164 in Books > Biographies & Memoirs > Professionals & Academics > Scientists

## Customer Reviews

This book takes us through the formulation of the theorems in "On Landau damping" by Cécile Mouhot and Cédric Villani. Villani is playful in real life, his research is playful, and the book is playful. This is a gem for a singular reason. One sees exactly how Villani (or a pure mathematician) goes from abstract to abstract without ever exiting the world of pure and symbolic mathematics, even though the subject concerns a very concrete real-world topic. I kept waiting for him to use simulations or even plots to see how the equations worked. But he did not ... he and Mouhot had

recourse to outside help (a student or an assistant) for the graphs and he calmly noted that they "looked" great. Later in the book he relied on others to do the numerical work... as an afterthought. Most physicists, quants, and applied mathematicians would have played with a computer to get the intuition; Villani just worked with mathematical objects, abstract mathematical objects, and very abstract at that. And this is a big deal for the subject because it belongs to a certain class of problems that do not have analytic solutions, usually requiring numerical approaches. Landau damping is about something many people are indirectly familiar with. Some history: Fokker-Planck equation, itself the Kolmogorov forward equation, is used commonly as the law of motion of particles (hence diffusions in finance). We quants use it in the main partial stochastic differential equation. In plasma physics it is related to the Boltzmann equation, which, by using mean-interaction in place of every interaction (mean-field), leads to the Vlasov equation. Landau damping is (sort of) about how things don't blow up because of some exponential decay.

[Download to continue reading...](#)

Birth of a Theorem: A Mathematical Adventure Bayes Theorem Examples: The Beginner's Guide to Understanding Bayes Theorem and its Applications Active Birth - Revised Edition: The New Approach to Giving Birth Naturally (Non) Raising Multiple Birth Children: A Parent's Survival Guide, Birth-Age 3 Bayes Theorem Examples: An Intuitive Guide The Underdog Theorem: How to Bet on the NFL and Win While Outperforming Wall Street (PART TWO) Gödel's Theorem: An Incomplete Guide to Its Use and Abuse Como Se Llama Este Libro / What is the Name of this Book?: El Enigma de Dracula y Otros Pasatiempos Logicos / The Riddle of Dracula and other Logical Puzzles (Teorema / Theorem) (Spanish Edition) Peregrinaciones/ Peregrinations: Ley, forma, acontecimientos/ Law, Form, Event (Teorema/ Theorem) (Spanish Edition) La transformacion de la intimidad. Sexualidad, amor y erotismo en las sociedades modernas (Teorema Serie Mayor / Theorem Major Series) (Spanish Edition) Logic for Computer Science: Foundations of Automatic Theorem Proving, Second Edition (Dover Books on Computer Science) Elementary Cryptanalysis: A Mathematical Approach (Mathematical Association of America Textbooks) Elementary Algebraic Geometry (Student Mathematical Library, Vol. 20) (Student Mathematical Library, V. 20) Handbook of Mathematical Functions: with Formulas, Graphs, and Mathematical Tables (Dover Books on Mathematics) A Course in Mathematical Modeling (Mathematical Association of America Textbooks) The Mathematical Olympiad Handbook: An Introduction to Problem Solving Based on the First 32 British Mathematical Olympiads 1965-1996 (Oxford Science Publications) Mathematical Apocrypha: Stories and Anecdotes of Mathematicians and the Mathematical (Spectrum) Lecture Notes on Mathematical Olympiad Courses: For Junior Section (Mathematical Olympiad Series)

Transformation Groups for Beginners (Student Mathematical Library, Vol. 25) (Student Mathematical Library, V. 25) running from the truth: its an adventure..its a great adventure (1)

[Dmca](#)