# Andrey Kolmogorov

was a Soviet mathematician who contributed to the mathematics of probability theory, topology, intuitionistic logic, turbulence, classical mechanics, algorithmic information theory and computational complexity.

Yongyu Chen
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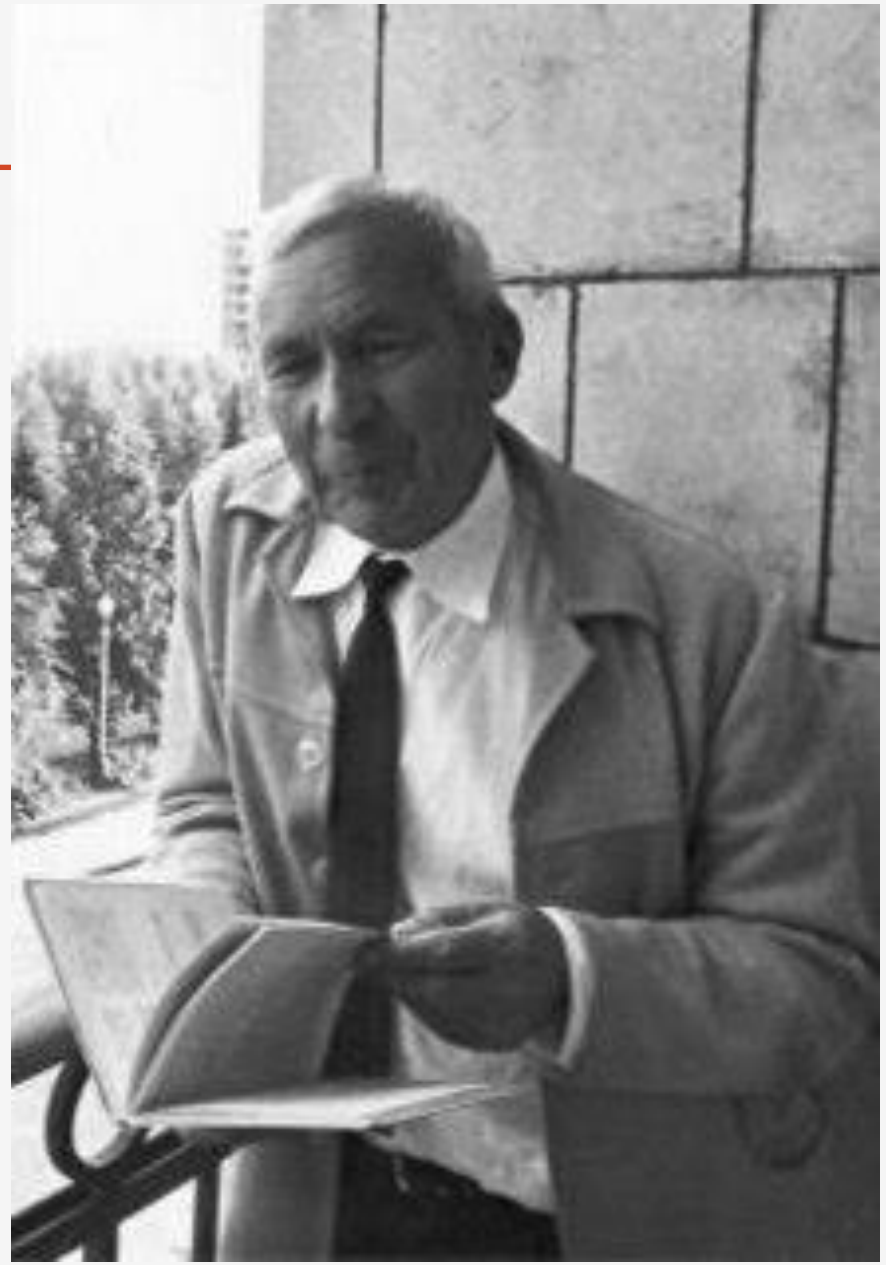
# Biography

| | |
|---|---|
| Born | Andrey Nikolaevich Kolmogorov<br><br>25 April 1903<br>Tambov, Russian Empire |
| Died | 20 October 1987 (aged 84)<br>Moscow, Russian SFSR, Soviet Union |
| Citizenship | Soviet Union |
| Alma mater | Moscow State University (Ph.D.) |
| Known for | •Probability theory<br>•Topology<br>•Intuitionistic logic<br>•Turbulence studies<br>•Classical mechanics<br>•Mathematical analysis<br>•Kolmogorov complexity<br>•KAM theorem<br>•KPP equation |



# Biography

https://www.genealogy.math.ndsu.nodak.edu/id.php?id=10480

| | |
|---|---|
| Awards | •Member of the Russian Academy of Sciences[1]<br>•Stalin Prize (1941)<br>•Balzan Prize (1962)<br>•ForMemRS (1964)[2]<br>•Lenin Prize (1965)<br>•Wolf Prize (1980)<br>•Lobachevsky Prize (1986) |
| Doctoral advisor | Nikolai Luzin |
| Doctoral students | •Vladimir Alekseev<br>•Vladimir Arnold<br>•Sergei N. Artemov<br>•Grigory Barenblatt<br>•Roland Dobrushin<br>•Eugene Dynkin<br>•Israil Gelfand<br>•Boris Gnedenko<br>•Leonid Levin<br>•Ellida Khazen<br>•Per Martin-Löf<br>•Robert Minlos<br>•Andrei Monin<br>•Sergey Nikolsky<br>•Alexander Obukhov<br>•Yuri Prokhorov<br>•Yakov Sinai<br>•Albert Shiryaev<br>•Anatoli Vitushkin<br>•Vladimir Uspensky<br>•Akiva Yaglom |

https://en.wikipedia.org/wiki/Andrey_Kolmogorov

# Contribution fields

Probability theory

Real analysis

Functional analysis

Topology

Constitutional logic

Algorithmic Information theory

Dynamical system

Turbulence

Classic mechanism

## OBITUARY

## ANDREI NIKOLAEVICH KOLMOGOROV
(1903–1987)

A tribute to his memory organised by David Kendall

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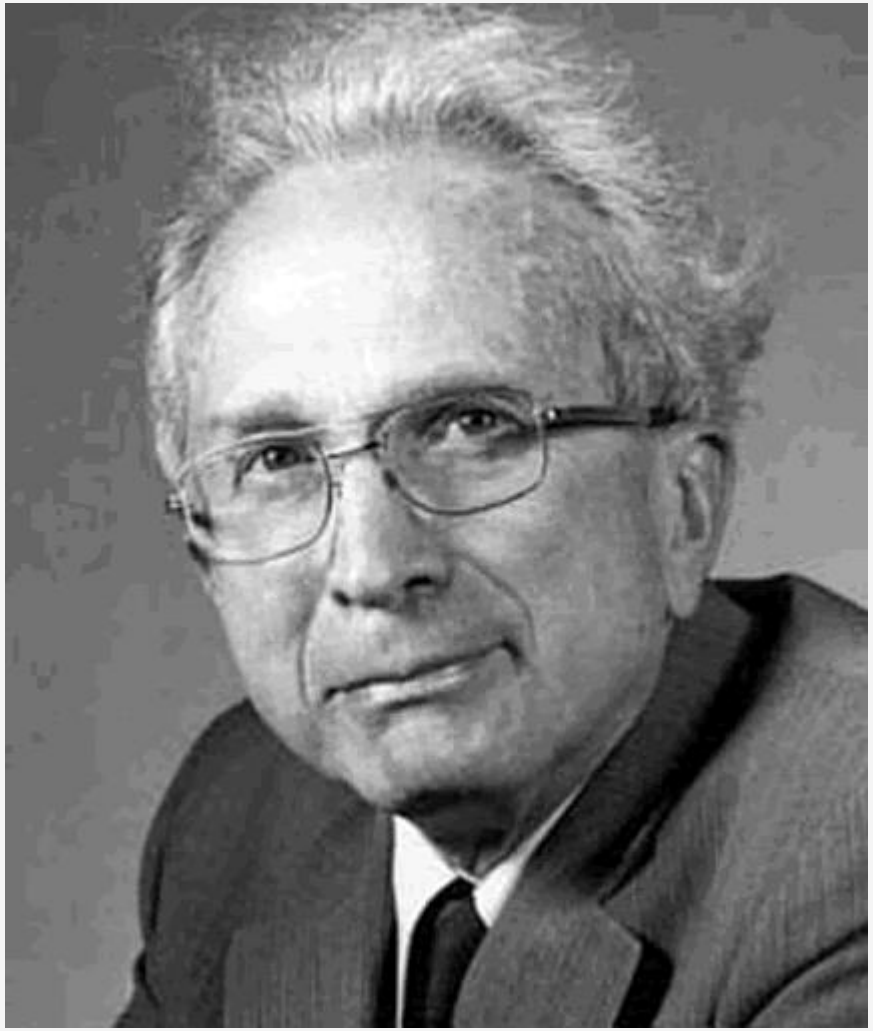
# Some interesting stories

It’s said that in the probability and statistics conference held in Tiflis in 1963, the statistician Jacob Wolfowitz(1910-1981) from USA said that

**the special purpose I came to soviet union is to check Kolmogorov is a person or a research institute.**



Source:
http://www.mit.edu/~panyulin/misc_files/Kolmogorov.pdf
http://www.eilatgordinlevitan.com/warsaw/w_pages/warsaw_stories_wolfowitz.html

# When he became famous

Andrey Kolmogorov was born in Tambov, although his talent of mathematics could be seen since his childhood but was fascinated to Russian history. After entering Moscow state university in 1920, he not only studied mathematics, but also actively participated in the history seminar of history professor, Bakhrushin Vladimirovich. Soon, he finished his first history paper in his life, and submitted it to Bakhrushin, which was entitled “The landholding in the Novgorod in the 15th century”. He groundbreakingly induced the mathematical statistics methods to history studies. Bakhrushin was supervised after reading, but from the history perspective, he drew the following conclusion:

“You have supplied one proof of your thesis, and in the mathematics that you study this would perhaps suffice, but we historians prefer to have at least ten proofs.”

During his unextraordinary life, he was ashamed that he could not make any contribution to history. But that’s not true, one year after his death, A famous historian Valentin Yanin, he highly ranked this paper,

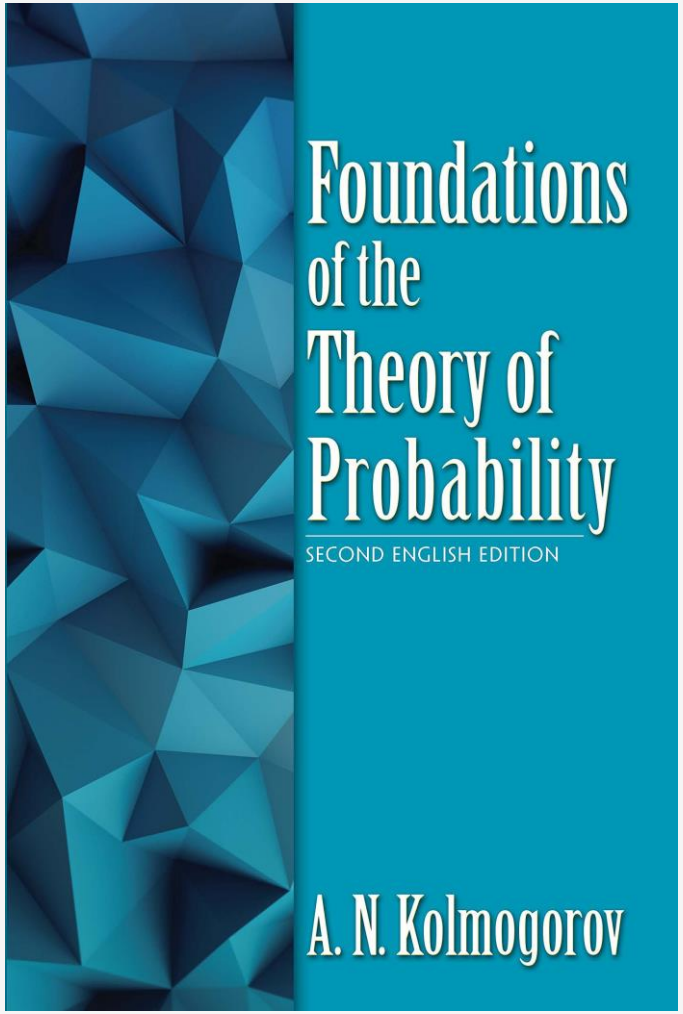
“As a basis for the method, the author put forward the theory of probability, which had not been applied to Novgorod land-registers before and is unfortunately not so applied now due to the ignorance of researchers on the subject of Kolmogorov's work of almost seventy years ago.”

# Back to 1929

After studying in Moscow university for 10 years, he studied under the supervision of the great mathematician of analysis Nikolai Luzin.

At that time, although Stalin began his dictatorship,  but soviet union still has some relationship with western Europe. Kolmogorov visted Germany and France in 1930, he was at the campus of Groningen and Ens, paris, he discussed limitation theory with Richard Courant, constitutional logic with Hermann Weyl, Integral Analysis with Henri Lebesgue, group theory with Emmy Noether.

In 1931, he went back to soviet union, worked as a professor in Moscow university, during the later two years, he understood deeply about probability, he defined the strict axiom system based on measure theory, he published the book, Foundations of the Theory of Probability, which set up a solid foundation for modern probability theory.



Éric Charpentier · Annick Lesne
Nikolaï K. Nikolski (Eds.)

# Kolmogorov's Heritage in Mathematics

With 22 Figures

Springer

## Contents

# What Ito said

When I knew that the great soviet union mathematician, 84-year-old, Andreyii Nikolaevich Kolmogorov left the world on Oct. 20th, 1987, I felt sad and lonely seemed that I lost the support, when I was a student, in 1937, after reading his famous literature, the foundation of probability, I began to study in probability, during the 50 years, for me, Kolmogorov is my mathematical support.

-Kiyosi Itô(Wolf Prize Winner)

According to Kolmogorov, math is the science of the quantity relations and space form of the real world.

(1) The studying objects of math come from real life, but studying them as math, we should leave the materials of real world(the abstraction of math).

(2) But the abstraction of math doesn't mean that we should fully abandon the real materials. The species of quantity relations and space form we should study is increasing by the science techniques. So the math defined above is continuously enriching.

-sorted by Ito

## Awards and honours [ edit ]

Kolmogorov received numerous awards and honours both during and after his lifetime:

- Member of the Russian Academy of Sciences[1]
- Awarded the Stalin Prize in 1941
- Award the Balzan Prize in 1962
- Elected a Foreign Member of the Royal Netherlands Academy of Arts and Sciences in 1963[23]
- Elected a Foreign Member of the Royal Society (ForMemRS) in 1964.[2]
- Awarded the Lenin Prize in 1965
- Awarded the Wolf Prize in 1980
- Awarded the Lobachevsky Prize in 1986

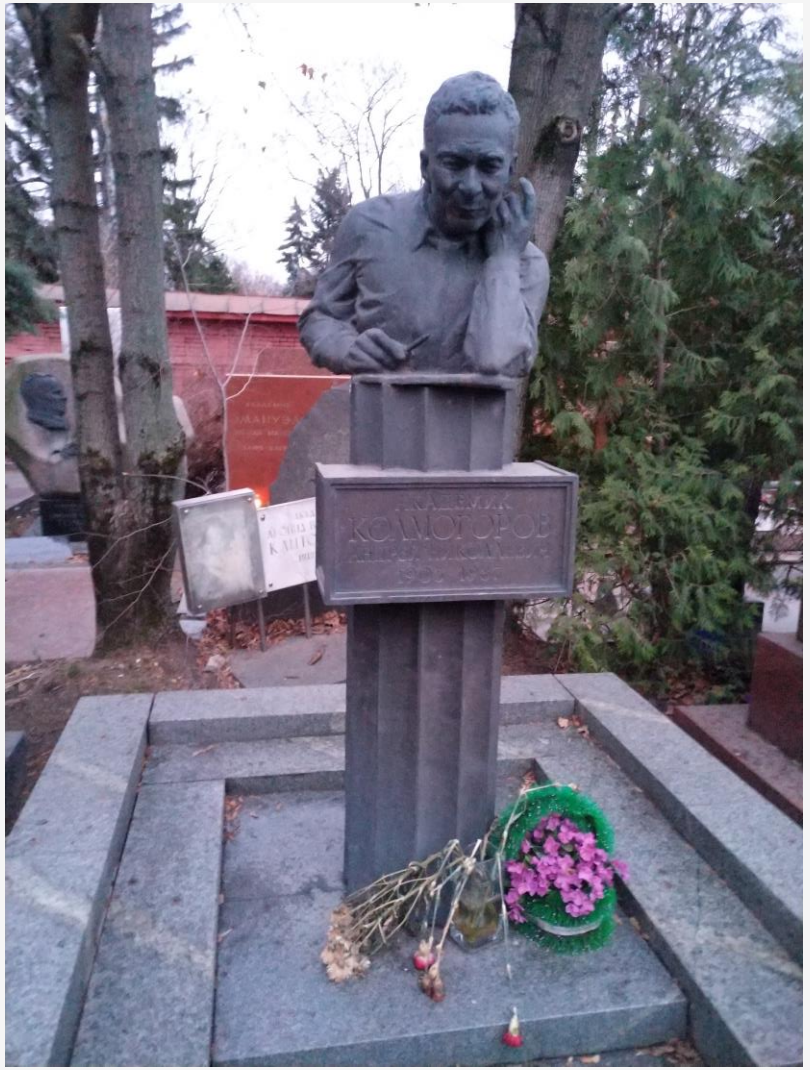
Kolmogorov works on his talk (Tallinn, 1973).

The following are named in Kolmogorov's honour:

- Fisher–Kolmogorov equation
- Kolmogorov axioms
- Kolmogorov equations (also known as the Fokker–Planck equations in the context of diffusion and in the forward case)
- Kolmogorov dimension (upper box dimension)
- Kolmogorov–Arnold theorem
- Kolmogorov–Arnold–Moser theorem
- Kolmogorov continuity theorem
- Kolmogorov's criterion
- Kolmogorov extension theorem
- Kolmogorov's three-series theorem
- Convergence of Fourier series
- Quasi-arithmetic mean (it is also called Kolmogorov mean)
- Kolmogorov homology
- Kolmogorov's inequality
- Landau–Kolmogorov inequality
- Kolmogorov integral
- Brouwer–Heyting–Kolmogorov interpretation
- Kolmogorov microscales
- Kolmogorov's normability criterion
- Fréchet–Kolmogorov theorem
- Kolmogorov space
- Kolmogorov complexity
- Kolmogorov–Smirnov test
- Wiener filter (also known as Wiener–Kolmogorov filtering theory)
- Kolmogorov automorphism
- Kolmogorov's characterization of reversible diffusions
- Borel–Kolmogorov paradox
- Chapman–Kolmogorov equation
- Hahn–Kolmogorov theorem
- Johnson–Mehl–Avrami–Kolmogorov equation
- Kolmogorov–Sinai entropy
- Astronomical seeing described by Kolmogorov's turbulence law
- Kolmogorov structure function
- Kolmogorov's zero–one law
- Kolmogorov–Zurbenko filter
- Kolmogorov's two-series theorem
- Rao–Blackwell–Kolmogorov theorem
- Khinchin–Kolmogorov theorem

# My visiting to Novodevichy Cementery

In 2019, I visited Moscow Novodevichy Cementery with a Chinese visiting scholar.



Thank you for listening!