INFOMAT

Oktober 2019

TALLET 3 SOM EN SUM AV KUBIKKTALL

Tallet 3 kan enkelt skrives som en sum av kubikktall på to måter;
$$3 = 1^3 + 1^3 + 1^3 = 4^3 + 4^3 + (-5)^3$$
Nå har to forskere (Andrew Booker, Bristol, UK og Andrew Sutherland, MIT, USA) funnet en tredje løsning på problemet;
$$569936821221962380720^3 + (-569936821113563493509)^3 + (-472715493453327032)^3 = 3$$
Til å finne denne løsningen ble det brukt et nettverk av en halv million datamaskiner. Hvis en maskin skulle ha gjort jobben alene ville den ha brukt nærmere 500 år med kontinuerlig arbeid.

Booker og Sutherland har også løst problemet for tallet 42, det siste uløste tallet under 100, og for 906, men fortsatt gjenstår 8 tall under 1000 (114, 390, 579, 627, 633, 732, 921 og 975). Rådende formodning er at alle disse kan skrives som summer av tre kubikktall. Men det er selvfølgelig mulig at de er i samme kategori som 4, 5 og 13, som man ved å bruke enkel modulo-regning kan vise at ikke har noen løsning.

ARRANGEMENTER

Matematisk kalender

NASJONALT ALGEBRAMØTE, Oslo, 7.-8. november 2019

Årets nasjonale algebramøte finner sted 7.-8. november 2019 i Oslo, se webside: https://www.mn.uio.no/math/forskning/grupper/algebra/arrangementer/nasjonaltmote2019/

ALGEBRAIC AND ANALYTIC PERSPECTIVES IN THE THEORY OF ROUGH PATHS AND SIGNATURES, Oslo, 14.-15. November 2019.

The topic of rough paths and signatures is highly mathematically interdisciplinary, and there will be lectures based on the following topics:
Hopf and Lie Algebras - and their application toward integration and data analysis
Statistics - Characterization of data through signatures
Integration theory and differential equations - driven by irregular noise
Stochastic analysis - Realization of stochastic processes as irregular paths
Applications to Machine Learning and Finance
The seminar will consist of 12 invited lectures during Thursday 14. and Friday 15. November, given by international experts in the field of rough paths and signatures.
For more information on the program, abstracts and invited speakers, please see the webpage below:
https://www.mn.uio.no/math/english/research/projects/storm/events/conferences/algebraic-and-analytic-perspectives-in-the-theory-/algebraic-and-analytic-perspectives-in-the-theory-.html

Nye doktorgrader

M.Sc. **Adrian Montgomery Ruf** ved Matematisk institutt, UiO, forsvarte 17. oktober 2019 sin avhandling *Numerical methods for nonlinear conservation laws f*or graden ph.d.
Veiledere har vært Professor Nils Henrik Risebro og Professor Kenneth Hvistendahl Karlsen, begge ved Universitet i Oslo.
Sammendrag:
Numerical methods are of incredible importance in all kinds of physical applications based on solving partial differential equations. In this thesis, I analysed and developed numerical methods for a particular class of partial differential equations called hyperbolic conservation laws which appear in a multitude of models including models in oceanography, gas dynamics, and traffic flow. The numerical methods in question are used in practice to approximate solutions of such models and these solutions can then be used to predict wave heights in ocean currents, the yield of gas flowing through a pipeline, and high density traffic situations for example. On the other hand, numerical methods are a tool to prove theoretical properties of the underlying model which can either justify the model or lead to its rejection.
In particular, the findings of my thesis include techniques to incorporate boundary conditions in finite volume methods for conservation laws with a nonlocal source term arising in modelling ocean waves and novel numerical methods with high accuracy for conservation laws with a nonlocal flux.

Nyheter

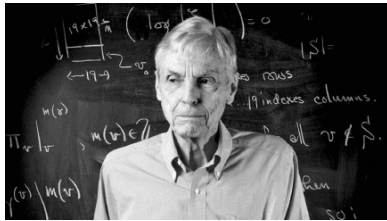## ABELPRISVINNER JOHN TATE (1925-2019)

John Tate, who won the world's top prize in mathematics and taught for nearly 20 years at The University of Texas at Austin where he was Regental Professor Emeritus, has died. He was 94.

Tate held the university's Sid W. Richardson Chair in Mathematics and received several of the most prestigious prizes in science, including being named an Abel laureate, the highest honor in mathematics. He was also the recipient of the prestigious Wolf Prize and was a member of the National Academy of Sciences.

Considered a prime architect in the development of the theory of numbers, Tate was a giant in a mathematical area that covers a wide range of problems, from the distribution of prime numbers to mathematics pertinent to a range of aspects of modern life, such as information storage and secure transmission in high-speed computing. Tate's involvement with this elaborate and sophisticated branch of mathematics led to several concepts bearing his name: the Tate module, the Tate curve, the Tate Cycle, and many more.

Tate received a bachelor's degree in mathematics from Harvard University in 1946 and a doctoral degree in 1950 from Princeton University, where he studied with Emil Artin, a leading mathematician of the 20th century. Tate's thesis became one of the formative ingredients in the development of modern algebraic number theory. He went on to make fundamental discoveries over a period spanning six decades, first as a faculty member at Harvard, then as a professor at UT Austin beginning in 1990. In 2009, he retired and received the title of professor emeritus, one year before winning the prize sometimes called "the Nobel of mathematics."

MELDING FRA EMS

Dear Colleagues,
Newsletter of the European Mathematical Society publishes in June and in December issues a section called Personal Column.
If you want to announce (***briefly!***):
- recent laureates of prizes,
either because the laureate is a member of your mathematical society or because the prize is in some way linked to the EMS,
- recent deaths of your members
(specify, please, exactly the day/month/2019 and the place of death: town, country),
in the next (December 2019) issue N°114, send ,please, your message to
Valentin.Zagrebnov@univ-amu.fr
by the **27th of October 2019**.
For examples of announces see, please, page 60 in
https://www.ems-ph.org/journals/newsletter/pdf/2019-06-112.pdf
Thank you for your collaboration.

Best regards
Valentin A. Zagrebnov
Editor-in-chief of the EMS Newsletter