INFOMAT

Juni 2010

Kjære leser!

I august er det duket for ny internasjonal matematikerkongress, denne gangen i India. ICM er en viktig begivenhet for matematisk forskning. Utvalget av foredragsholdere sier noe om hva som er "hot" nå om dagen, og Fields-medaljene introduserer framtidige stjerner til det brede fellesskap som verdens matematikere utgjør.
Sommeren er også tiden for matematikkolympiade. Dette er arenaen for de helt unge talentene. Mange nasjoner legger mye prestisje i matematikkolympiaden, i motsetning til Norge og en del andre land, der konkurransen sees på som en hyggelig happening for noen utvalgte ungdommer. Kanskje det er på tide at forskningsministeren tar med seg den departementale heia-gjengen til matematikkolympiaden, på samme måten som kulturministeren har for vane å gjøre når det er OL?

hilsen Arne B.

UNGE TALENTER TIL MATEMATIKKOLYMPIADEN!

Tony Valle (bildet) fra Hammerfest er ankermann på det norske laget som drar til matematikkolympiaden i Astana i Kazakhstan i juli. Sammen med Karl Erik Holter, Bernt Ivar Nødland, Håkon A. H. Olsen, Une André Simonsen og Marius Utheim skal de forsøke å ta opp kampen mot unge matematikktalenter fra hele verden. INFOMAT ønsker dem lykke til med turen og konkurransen.

INFOMAT kommer ut med 11 nummer i året og gis ut av Norsk Matematisk Forening. Deadline for neste utgave er alltid den 10. i neste måned. Stoff til INFOMAT sendes til

infomat at math.ntnu.no

Foreningen har hjemmeside http://www.matematikkforeningen.no/INFOMAT
Ansvarlig redaktør er Arne B. Sletsjøe, Universitetet i Oslo.

ARRANGEMENTER/NYHETER

Matematisk kalender

2010:
August:
19.-27. *ICM 2010*, Hyderabad, India
September:
28.-1.oktober. Abelsymposiet; *Nonlinear partial differential equations*, Oslo

2012:
August:
2.-7. *6ECM*, Krakow, Polen

Abelsymposiet 2010: NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS, Oslo, 28. september-1.oktober 2010

The scientific program will center around mathematical and numerical aspects of various classes of nonlinear partial differential equations (PDE). The symposium will bring together leading experts to learn about current trends in the field. Relevant topics include (i) nonlinear hyperbolic equations arising in fluid mechanics and general relativity, including questions of existence, uniqueness, regularity, formation of singularities, and asymptotic behaviour of solutions; (ii) nonlinear elliptic equations and variational methods with applications to mathematical physics, relativistic quantum mechanics, and quantum chemistry; (iii) construction and analysis of numerical methods for nonlinear PDE. The organizing committee consists of Helge Holden (NTNU) and Kenneth H. Karlsen (UiO).

Nye doktorgrader

Nguyet Thanh Nguyen forsvarte den 23. april 2010 sin avhandling *The Stability and Instability of Solitary Waves'* for Ph.D.-graden ved Universitetet i Bergen.

Nytt fra instituttene

THE CARL-ERIK FRÖBERG PRIZE FOR YOUNG BIT AUTHORS for 2010 tildelt Andreas Asheim, PhD-student ved IMF, NTNU

BIT was started by Carl Erik Fröberg in 1961. The name is an acronym for "Tidskrift för Informations-behandling" read backwards. From the outset, a wide area of computer science and technology was covered, but since 1992 the focus has been on Numerical Mathematics.

NTNU

GOD SOMMER!

NYHETER

NOREGS LAG TIL MATEMATIKKOLYMPIADEN I ASTANA, KAZAKHSTAN

Den 51. internasjonale matematikkolympiaden vert i år arrangert i Astana i Kasakhstan 5. - 14. juli. I forkant vert det treningsleir i Danmark 29. juni - 4. juli for det norske laget, saman med Danmark, Finland og Sverige. Det norske laget: **Une André Simonsen** (Stranda), **Karl Erik Holter** (Stabekk vgs), **Bernt Ivar Nødland** (Sandnes vgs), **Håkon A. H. Olsen** (Hafstad vgs, Førde), **Marius Utheim** (Finnfjordbotn vgs) og **Tony Valle** (Hammerfest vgs).

KYOTO-PRISEN FOR 2010 TILDELT LÁSZLÓ LOVÁSZ

László Lovász will receive the 26th annual Kyoto Prize in Basic Sciences, which for 2010 focuses on the field of mathematical sciences. The prize is awarded by the Inamori Foundation of Japan and consists of a diploma, a 20-karat-gold Kyoto Prize medal, and a cash gift totaling 50 million yen (approximately US$550,000). Lovász, who is director of the Mathematical Institute at Eötvös Loránd University in Budapest and the current president of the International Mathematical Union, has been chosen for ”outstanding contributions to mathematical sciences based on dscrete optimization algorithms.” The prize citation states: ”Through his advanced research on discrete structures, Dr. Lovász has provided a link among various branches of mathematics in terms of algorithms, thereby influencing a broad spectrum of the mathematical sciences---including discrete mathematics, combinational optimization and theoretical computer science. In so doing, Dr. Lovász has made outstanding contributions to the advancement of both the academic and technological possibilities of the mathematical sciences.” Lovász has solved several outstanding problems, including the weak perfect graph conjecture and the determination of the Shannon capacity of the pentagon. He is perhaps best known for the widely used Lovász local lemma, which provides a fundamental probabilistic tool for the analysis of discrete structures and contributes to the creation of a framework for probabilistically checkable proofs. The basis algorithm, commonly known as the ”LLL algorithm,” has also contributed to the construction of important algorithms and has become a fundamental tool in the theory of cryptography.

SHAW_PRISEN FOR 2010 TIL JEAN BOURGAIN

The Shaw Prize in Mathematical Sciences 2010 is awarded to Jean Bourgain for his profound work in mathematical analysis and its application to partial differential equations, mathematical physics, combinatorics, number theory, ergodic theory and theoretical computer science.

Jean Bourgain, born 1954 in Ostende, Belgium, has been a Professor at the Institute for Advanced Study, Princeton, USA since 1994. He obtained his PhD from the Free University of Brussels, Belgium in 1977. He was a Professor of Mathematics at the Free University of Brussel, Belgium from 1981 to 1985, the University of Illinois at Urbana-Champagne, USA from 1985 to 2006 and at the Institut des Hautes Études Scientifiques, Paris, France from 1985 to 1995. He is a Foreign Member of the Academics of Science of France, Poland and Sweden.

VLADIMIR I. ARNOLD (1937-2010)

Vladimir Igorevich Arnold, an outstanding mathematician of the 20th century, died on June 3, a few days short of his 73rd birthday. His work ranged over a wide swath of mathematics, including dynamical systems, singularity theory, real algebraic geometry, symplectic geometry, mechanics, and hydrodynamics. In Arnold's vision, these were not separate fields but were all united by common questions arising from the physical world--questions to be attacked with a wide range of methods from differential equations, geometry, and topology. Arnold's name has become attached to several important concepts in mathematics, such as KAM theory (Kolmogorov-Arnold-Moser), the Arnold-Liouville theorem, the Arnold conjecture in symplectic geometry, and Arnold's chord conjecture in contact geometry (recently proved by Hutchings and Taubes). (This is quite remarkable, as Arnold himself was very skeptical of attaching names to results and often joked that a theorem could be called Newton's theorem only if it had not been proved by Newton.) In addition to the impact of his research, he had a profound influence through his books and his many students. His Mathematical Methods of Classical Mechanics has achieved the status of a modern classic. He was known for his dynamic and forceful personality, as well as an irreverent sense of humor.

WALTER RUDIN (1921-2010)

Walter Rudin, noted author and professor emeritus at the University of Wisconsin-Madison, died May 20 at the age of 89. Rudin authored the texts Principles of Mathematical Analysis, Real and Complex Analysis, and Functional Analysis, which are used by many graduate students. The first two are often referred to as "Baby Rudin" and "Papa Rudin," respectively. Rudin was born in Austria. He and his family fled to France in 1938 after the Anschluss. They then moved to England in 1940 after France surrendered to Germany. He served in the British Navy during World War II and came to the U.S. after the war. In 1949 he received his PhD from Duke University. Rudin then became a C.L.E. Moore Instructor at MIT before joining the faculty at the University of Wisconsin-Madison. He won the AMS Steele Prize for Mathematical Exposition in 1993 for Principles of Mathematical Analysis, and Real and Complex Analysis. Rudin's autobiography, The Way I Remember It, was published in 1997. He is survived by his wife, Mary Ellen, a noted topologist who was also a mathematics professor at the University of Wisconsin-Madison, four children and four grandchildren.

UTDRAG AV FORSKNINGSMINISTER TORA AASLANDS TALE VED ABEL-BANKETTEN

...

As a lay person, I shall not try to go in depth into the impressive works of Professor Tate. Still, there are some points concerning your life and career, Professor Tate, that caught my attention, and that I find interesting also from a research policy perspective.

Our latest white paper on research is funded on two fundamental ideas on research. Firstly, that research shall contribute to finding solutions to challenges we are facing in our society, be it climate change, health or others. Secondly, that research shall contribute to finding answers to questions we didn't even know that we should have asked.

Number theory is a branch of pure mathematics concerned with the properties of numbers as well as problems that arise from studying them. It is not always immediately obvious which, if any, daily life problems number theory could help solve. But that does not make this kind of scientific activity less important. Quite the contrary. History has taught us that great discoveries and scientific breakthroughs may arise from the most surprising and unexpected sources. ***It is therefore essential to promote scientific activity which is based on curiosity*** (uthevet av redaksjonen)**.** The impressive number of mathematical concepts initiated by Professor Tate is a clear sign that we are dealing with a truly curious scientist, creating the basis for even more questions and thus more knowledge.

Another point that I would like to emphasize tonight is the importance of stimulating children and young people to take an interest in mathematics from an early age. Norway, like many other countries, has experienced some difficulty in recruiting young people to study mathematics and natural sciences. Unfortunately, many children and young people tend to look at mathematics as boring and overloaded with theory. The Government has placed high priority on reversing this trend. When the Abel Fund was established, an important objective was also to foster increased interest in mathematics among children and young people.

The Greek philosopher Aristotle said that "All men by nature desire knowledge". I believe that children's desire for knowledge is especially strong. Children are curious human beings, questioning everything, including mathematical phenomena, often through playing. But they need inspiration in order to foster talent and interest. Professor Tate grew up with a fascination for mathematical puzzles, inspired by books owned by his father, who was a physics professor. I think puzzles and games are a great way of starting a mathematical career, also for children in my country. Realizing that learning mathematics should be fun, a group of 6–9 year old pupils has developed no less than eleven different mathematical games for kindergarteners, as part of the science project Nysgjerrigper (or Curious George) for primary schools. The games will now be put into production, and I truly hope that this will open the eyes of many children of the great possibilities of mathematics.

...

This year's Abel laureate, Professor Tate, as well as previous laureates, stand out as eminent mathematicians and serve as an inspiration for new generations of scientists. I would like to end by quoting the 19th century American politician William Wirt, reminding us of the importance of curiosity in our pursuit of knowledge: "Seize the moment of excited curiosity on any subject to solve your doubts; for if you let it pass, the desire may never return, and you may remain in ignorance."

Please join me in a toast to this year's Abel laureate, Professor Tate, and to mathematics!

NYHETER FRA IMU: INTERNATIONAL CONGRESS OF MATHEMATICIANS (ICM 2010)

The year 2010 is significant for mathematics. It marks the centenary of the founding of the Indian Mathematical Society, while a second mathematical society - the Ramanujan Mathematical Society - will be celebrating its Silver Jubilee. India will be hosting the International Congress of Mathematicians (ICM) in Hyderabad during August 19-27, 2010. This is the first time in more than hundred years of history of the ICMs that the Congress will be held in India and only the third time in an Asian country (the 1990 Congress was held in Kyoto and the 2002 Congress in Beijing). Recent Congresses have had an attendance of around 3500 delegates. The General Assembly of IMU will also meet in Bangalore during 16-17 August.

India has a long tradition of pursuit of mathematics. The recognition of zero as a number and the place value system for representing numbers with its use is an Indian innovation dating back to the early centuries of the Christian era. India had also made progress in geometry contemporaneous with the Greeks and even earlier. During the middle ages, India recorded substantial achievements in algebra as well. Aryabhata and Brahmagupta were mathematicians of the first rank. Madhava, a fourteenth century mathematician from South West India had discovered the essentials of calculus long before Newton and Leibniz. But all this was in an era when science was pursued by isolated intellectuals with no serious impact on the practical world.

India was among the participant countries in the meetings that led up to the formation of the new IMU. Despite its role in the deliberations that resulted in the formation of the new IMU, India became a member of the IMU only in 1954 - two years after its inception. K Chandrasekharan, an eminent Indian mathematician served with distinction on the Executive Committee of the IMU for a period of twenty four consecutive years, five of them as Secretary and four as President of the Union.

Among the exciting events that will take place on the sidelines of the Congress will be a Classical Indian (Hindustani) Music Concert by the renowned artist Rashid Khan, an Indian Dance-Drama (Bharata Natyam) by the troupe Nrityashree (lead by Professor C V Chandrasekhar) and a play. Some 40 lucky delegates/accompanying persons will get the opportunity to play chess against the current World Champion Grandmaster Vishy Anand. There will be some public outreach events also during the Congress. India, of course, is a wonderful tourist destination catering to every taste and interest.

One new feature of the Hyderabad Congress is that it will be preceded by a 2-day meeting styled ”International Congress of Women Mathematicians” which will focus attention on women in mathematics. The initiative for holding this comes from the organization ”European Women in Mathematics”.

This is the first meeting of its kind.

At Hyderabad, a new prize, the Chern Medal, named after S.S.Chern, a towering figure in geometry in the twentieth century, is to be awarded for

the first time to an individual whose lifelong outstanding achievements in mathematics warrant the highest level of recognition.

The Executive Organising Committee (EOC) of ICM is aware of the importance of mathematics reaching out to the public. It would like to recognize outstanding efforts made in that direction in a fitting manner. Towards this end it has instituted a one-time international prize of 1,000,000/- (Indian) Rupees (approximately 20,000/- US Dollars) for outstanding contribution to public outreach for mathematics by an individual. The prize is to be announced and awarded at ICM in Hyderabad, India.

A BOOK ON INTERNATIONAL CONGRESSES OF MATHEMATICIANS

”*Mathematicians of the World Unite! The International Congress of Mathematicians–A Human Endeavor*”

Guillermo P. Curbera, AK Peters, 2009

This book contains valuable information about all the international congresses that have taken place so far.