



INFOMAT

August 2009

Kjære leser!

Sommeren er over og nye og gamle studenter velter inn over universiteter og høyskoler. I år er det igjen tid for Norsk Matematikkråds forkunnskapstest og alle ferske studenter skal testes. De siste

årene har tendensen vært at studentene stadig har flere hull i sine basisferdigheter. Nå har det vært gjort ulike tiltak for å bedre dette og årets test vil gi en pekepinn om utviklingen har snudd.

Fristen for å søke om Abelsymposium for 2011. Mange gode miljøer har allerede stått for et slikt arrangement, men fortsatt finnes det mange som kan søke.

hilsen Arne B.



SØKNADSRIST FOR ABELSYMPOSIUM FOR 2011, 15. september

Søknadsfristen for å bli tildelt Abelsymposiet for 2011 går ut 15. september i år. Det er Norsk Matematisk Forening som står bak arrangementene, økonomisk støttet av Abelfondet, og med ulike fagmiljøer rundt omkring i landet som arrangører. Bildet er fra årets Abelsymposium på Voss, ledet av Gunnar Fløystad, Andreas Leopold Knutsen og Trygve Johnsen. Dette var det femte symposiet i rekken og i 2010 er temaet *Nonlinear Partial Differential Equations* og arrangementet er lagt til Oslo i tiden 28. september -1. oktober med Helge Holden og Kenneth Karlsen som arrangører.

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

September:

23.-24. Lær bedre matematikk - undring og utforskning, UiA, Kristiansand

Oktober:

12.-17. An international Conference on Stochastic Analysis and Applications, Hammamet, Tunisia

2010:

September:

28.-1.oktober: Abelsymposiet; *Nonlinear partial differential equations*, Oslo

LÆR BEDRE MATEMATIKK - UNDRING OG UTFORSKING

Kristiansand, 23.-24. september 2009

Flere opplysninger på <http://www.uia.no/no/portaler/aktuelt/konferanser/lbm>

ABELSYMPOSIET 2011

Kjære kolleger,

på vegne av Norsk matematisk forening vil jeg be dere om å spre informasjon til eventuelle søkere og søkermiljøer ved ditt institutt for Abelsymposiet 2011.

Søknadsfristen er 15. september 2009, og detaljerte instruksjoner for søknadsprosedyre fins på <http://abelsymposium.no/info.php>. Norsk matematisk forening behandler søknadene på vegne av Abelfondet.

mvh Brynjulf Owren
(leder av Norsk matematisk forening)



**Norsk
matematisk
forening**

Fra instituttene

Professor **Maria Luiza Cestari** har forskningspermisjon studieåret 09/10



Følgende har forskningspermisjon hele eller deler av 2009/2010:

- Professor Kari Hag,
- Professor Trond Digernes,
- Førsteamanuensis Jo Eidsvik,
- Førsteamanuensis Harald Hanche-Olsen,
- Førsteamanuensis Espen R. Jakobsen,
- Professor Kristian Seip,
- Førsteamanuensis Ingelin Steinsland,
- Professor Lisa Lorentzen,
- Professor Nils A. Baas
- Førsteamanuensis Anne Kværnø.

Gjester

Osamu Lyama, Hugh Thomas og Robert Marsh gjester førsteamanuensis Aslak Bakke Buan i august. **Karin Erdmann, Maria Ines-Platzeck og Gordana Todorov** er gjester hos professor Idun Reiten.



Nye doktorgrader

Olav Skutlaberg forsvarte 14. august 2009 sin avhandling *Topics in Topological Equivalence of Plane-to-Plane Map-Germs; Sufficiency of Jets and Classification* for ph.d.-graden ved Universitetet i Oslo.

Franz Georg Fuchs ved Universitetet i Oslo vil 24. august 2009 forsvare sin avhandling for graden ph.d. *Simulating waves in the solar atmosphere with MHD*.



IMO 2009

DEN INTERNASJONALE MATEMATIKKOLYMPIADEN 2009

Kina ble beste nasjon i den 50. internasjonale matematikkolympiaden (IMO) i Bremen i Tyskland i sommer. Laget fikk totalt 221 poeng av 252 mulige og alle de 6 deltakerne på laget fikk gullmedalje. Japan ble nest beste nasjon med 212 poeng, fulgt av Russland med 203 poeng, Syd-Korea med 188 poeng og Nord-Korea med 183 poeng. Norge ble nummer 63 med 60 poeng. To av nordmennene, Sondre Kvamme og Jarle Stavnes fikk bronsemedaljer, mens to andre, Sivert Bocianowski og Karl Erik Holter fikk hedrig omtale (full skår på en oppgave).

Årets IMO samlet 565 deltakere fra 104 nasjoner. Neste år er det Kazakhstan som er vertskap for arrangementet, som arrangeres i tiden 2.-15. juli i hovedstaden Astana.



NORSKE RESULTATER I IMO

Norge deltok i IMO første gang i 1984. Det året ble John Rognes nummer 53 og fikk bronsemedalje. Siden den gang har 25 unge matematikktalenter fått med seg medalje hjem, 26 bronse-, 10 sølv- og 2 gullmedaljer. Gullmedaljene ble vunnet av Jørgen Vold Rennemo, 12. plass i 2008 og David Kunszenti-Kovács som ble nummer 29 i 2002.

ET PAR OPPGAVER FRA ÅRETS IMO

Oppgave 1.

La n være et positivt heltall, og la a_1, \dots, a_k ($k > 1$) være forskjellige heltall fra mengden $\{1, \dots, n\}$, slik at n deler $a_i(a_{i+1}-1)$ for $i=1, \dots, k-1$. Vis at n ikke deler $a_k(a_1-1)$.

Oppgave 6.

La n være et positivt heltall. La videre a_1, \dots, a_n være forskjellige positive heltall, og la M være en mengde bestående av $n-1$ positive heltall forskjellige fra $s=a_1+a_2+\dots+a_n$. En gresshoppe skal hoppe langs den reelle tallinjen, med start i 0. Den skal gjøre n hopp til høyre med lengder a_1, a_2, \dots, a_n i en eller annen rekkefølge. Vis at denne rekkefølgen kan velges slik at gresshoppen aldri havner i et punkt som ligger i M .



IMO 2010 arrangeres i Astana i Kazakhstan i tiden 2.-15. juli 2010.

ÅRSMØTE I NORSK MATEMATIKKRÅD

Årsmøtet i Norsk Matematikkråd vil bli avholdt i Tromsø 17.-19. september 2009.

NYTT FRA IMU

INTERNATIONAL CONGRESS OF MATHEMATICIANS - 2010

As many of IMU-NET readers would know, India is to host the International Congress (ICM-2010) for the year 2010. The congress will take place in the city of Hyderabad during August 19-27.

Mathematics is the language of science and India is proud to have coined one of the most important words of its lexicon - "zero" - in the distant past; and we have a long tradition of pursuit of mathematics. India joined the IMU soon after it was revived after the second world war. The Indian mathematical community feels greatly honoured that the IMU has accepted our bid to hold the ICM 2010 in India,

thereby extending recognition to our efforts at promoting mathematics. We look forward to welcoming our colleagues from all over the world



in Hyderabad, the venue of the Congress and expect to learn a great deal that is new. The Congress will be of great help to us to raise the level of public awareness about mathematics in our country.

India has been a professional destination for many mathematicians over the last 75 years and more. Many British academics had come to India to teach mathematics in our colleges during the colonial period. W H Young, the British analyst accepted a part-time chair, the Hardinge Professorship of Pure Mathematics in Calcutta University which he held from 1913 to 1917. Andre Weil spent two years at an Indian university as a professor during 1930 - 32.

R A Fisher spent several extended periods of time at the Indian Statistical Institute in Kolkata (ISI), his first visit dating back to 1937. ISI also hosted visits by Norber Wiener and A N Kolmogorov. Many other distinguished mathematicians, mainly probabilists from the erstwhile Soviet block visited ISI during the cold war years. In later years, after that institution set up branches in Delhi and Bangalore, also at the same time broadening its areas of research it has had a string of visitors, many of them big names in mathematics.

The Tata Institute of Fundamental Research (TIFR), Mumbai. TIFR too had a regular stream of visi-

tors almost from its inception in 1945, many of them spending extended periods of time in Mumbai. Carl Ludwig Siegel and Laurent Schwarz made several visits each of a duration of two months and more to during the fifties and sixties. Armand Borel and David Mumford made several visits to TIFR during the sixties and seventies (and later). The visitors' list to TIFR includes several Fields Medalists and other renowned mathematicians. The International Colloquia held once in every four years by TIFR have been an important forum for international exchange at the highest level.

To mention a few more distinguished visitors who spent extended periods of time in TIFR during the fifties and sixties: H Rademacher, H Mass, Eichler, J L Lions, K Yosida, B Malgrange, F Bruhat, J P Kahane, M Deuring, G de Rham, K Ito, G D Mostow, R Bott, R Langlands.....Many others have come on shorter visits mainly to participate in conferences:

A Selberg, H Grauert, R Thom, A Grothendieck, M F Atiyah, L Hormander, J Milnor, I Pjatetskii-Shapiro, J P Serre, H Furstenberg, G A Margulis, D KazdanThese visits were of course of great help to us in building mathematics in the country

Hyderabad the venue of the Congress is home to several IT companies and rivals Bangalore as a IT hub in the country. The city is well connected, with many airlines flying to and from it. It was founded in the 15th century and is steeped in history. It is also famous for its cuisine. India of course has a lot to offer by way of tourism catering to a wide range of interests: wild life, scenic splendour, historical monuments, art and music, great food and sports as well.

On behalf of the Indian mathematical community I would like to urge mathematicians from all over the world to participate in ICM 2010 and help us make it a great success.

For more information:

<http://www.icm2010.org.in/>

M.S. Raghunathan

Chairman of the organizing committee

NYTT FRA IMU

ICM VIDEOS

At ICM 1998 in Berlin the first attempt at an International Congress of Mathematicians was made to record the opening ceremony, plenary lectures, and other major events on video. The videos were archived in a format that is "gone" in the meantime, but they could be recovered and transformed with some effort to the current video standard "flash".

The videos are not "great", but some of them are undoubtedly of long term historic interest (e. g., see A. Wiles' lecture on Fermat's problem). At ICM 2002 in Beijing most of the major events and lectures were recorded as well. The video recording at ICM 2006 in Madrid became more professional, but we still have to learn how to "shoot" better videos of such events with a very limited budget.

IMU is grateful to the organizing committees of these ICMs for donating the videos to IMU and allowing IMU to place them on the Internet. IMU is making now the videos produced at these three ICMs available on its Web site at

<http://www.mathunion.org/activities/icm/videos>

IMU maintains the copyright of the videos but gives everyone interested the permission to download and show the videos. IMU just modestly requests to mention where these videos come from. IMU will continue this tradition and has asked the ICM 2010 organizing committee to also record the plenary lectures and the opening ceremony in Hyderabad.

OECD REPORT OF THE GLOBAL SCIENCE FORUM EXPERTS GROUP ON MATHEMATICS IN INDUSTRY

The report of the OECD Global Science Forum Experts Group on Mathematics in Industry is now a public document. It is a reasoned compendium of mechanisms that can be used for strengthening the links between industry and academic mathematics. The report is available at www.oecd.org/sti/gsf

IMUs FORSLAG TIL REVIDERTE FAGKODER (MSC2010)

00-XX General

01-XX History and biography [See also the classification number -03 in the other sections]

03-XX Mathematical logic and foundations

05-XX Combinatorics {For finite fields, see 11Txx}

06-XX Order, lattices, ordered algebraic structures [See also 18B35]

08-XX General algebraic systems

11-XX Number theory

12-XX Field theory and polynomials

13-XX Commutative rings and algebras

14-XX Algebraic geometry

15-XX Linear and multilinear algebra; matrix theory

16-XX Associative rings and algebras {For the commutative case, see 13-XX}

17-XX Nonassociative rings and algebras

18-XX Category theory; homological algebra {For commutative rings see 13Dxx, for associative rings 16Exx, for groups 20Jxx, for topological groups and related structures 57Txx; see also 55Nxx and 55Uxx for algebraic topology}

19-XX K-theory [See also 16E20, 18F25]

20-XX Group theory and generalizations

22-XX Topological groups, Lie groups {For transformation groups, see 54H15, 57Sxx,

58-XX. For abstract harmonic analysis, see 43-XX}

26-XX Real functions [See also 54C30]

28-XX Measure and integration {For analysis on manifolds, see 58-XX}

30-XX Functions of a complex variable {For analysis on manifolds, see 58-XX}

31-XX Potential theory {For probabilistic potential theory, see 60J45}

32-XX Several complex variables and analytic spaces {For infinite-dimensional holomorphy, see 46G20, 58B12}

33-XX Special functions (33-XX deals with the properties of functions as functions) {For orthogonal functions, see 42Cxx; for aspects of combinatorics see 05Axx; for number-theoretic aspects see 11-XX; for representation

theory see 22Exx}
34-XX Ordinary differential equations
35-XX Partial differential equations
37-XX Dynamical systems and ergodic theory
[See also 26A18, 28Dxx, 34Cxx, 34Dxx, 35Bxx, 46Lxx, 58Jxx, 70-XX]
39-XX Difference and functional equations
40-XX Sequences, series, summability
41-XX Approximations and expansions {For all approximation theory in the complex domain, see 30E05 and 30E10; for all trigonometric approximation and interpolation, see 42A10 and 42A15; for numerical approximation, see 65Dxx}
42-XX Fourier analysis
43-XX Abstract harmonic analysis {For other analysis on topological and Lie groups, see 22Exx}
44-XX Integral transforms, operational calculus {For fractional derivatives and integrals, see 26A33. For Fourier transforms, see 42A38, 42B10. For integral transforms in distribution spaces, see 46F12. For numerical methods, see 65R10}
45-XX Integral equations
46-XX Functional analysis {For manifolds modeled on topological linear spaces, see 57Nxx, 58Bxx}
47-XX Operator theory
49-XX Calculus of variations and optimal control; optimization [See also 34H05, 34K35, 65Kxx, 90Cxx, 93-XX]
51-XX Geometry {For algebraic geometry, see 14-XX}
52-XX Convex and discrete geometry
53-XX Differential geometry {For differential topology, see 57Rxx. For foundational questions of differentiable manifolds, see 58Axx}
54-XX General topology {For the topology of manifolds of all dimensions, see 57Nxx}
55-XX Algebraic topology
57-XX Manifolds and cell complexes {For complex manifolds, see 32Qxx}
58-XX Global analysis, analysis on manifolds [See also 32Cxx, 32Fxx, 32Wxx, 46-XX, 47Hxx, 53Cxx] {For geometric integration theory, see 49Q15}
60-XX Probability theory and stochastic processes {For additional applications, see 11Kxx, 62-XX, 90-XX, 91-XX, 92-XX, 93-XX, 94-XX}

62-XX Statistics
65-XX Numerical analysis
68-XX Computer science {For papers involving machine computations and programs in a specific mathematical area, see Section -04 in that area}
70-XX Mechanics of particles and systems {For relativistic mechanics, see 83A05 and 83C10; for statistical mechanics, see 82-XX}
74-XX Mechanics of deformable solids
76-XX Fluid mechanics {For general continuum mechanics, see 74Axx, or other parts of 74-XX}
78-XX Optics, electromagnetic theory {For quantum optics, see 81V80}
80-XX Classical thermodynamics, heat transfer {For thermodynamics of solids, see 74A15}
81-XX Quantum theory
82-XX Statistical mechanics, structure of matter
83-XX Relativity and gravitational theory
85-XX Astronomy and astrophysics {For celestial mechanics, see 70F15}
86-XX Geophysics [See also 76U05, 76V05]
90-XX Operations research, mathematical programming
91-XX Game theory, economics, social and behavioral sciences
92-XX Biology and other natural sciences
93-XX Systems theory; control {For optimal control, see 49-XX}
94-XX Information and communication, circuits
97-XX Mathematics education

Det er åpent for kommentarer på
http://msc2010.org/mscwiki/index.php?title=Main_Page



PRINCETON TEAM'S ADVANCE IN PACKING PROBLEM IN NATURE

Princeton researchers have beaten the present world record for packing the most tetrahedra into a volume. Research into these so-called packing problems have produced deep mathematical ideas and led to practical applications as well. Princeton University/Torquato Lab. "Finding the best way to pack the greatest quantity of a specifically shaped object into a confined space may sound simple, yet it consistently has led to deep mathematical concepts and practical applications, such as improved computer security codes. When mathematicians solved a famed sphere-packing problem in 2005, one that first had been posed by renowned mathematician and astronomer Johannes Kepler in 1611, it made worldwide headlines. Now, two Princeton University researchers [Salvatore Torquato, a professor in the Department of

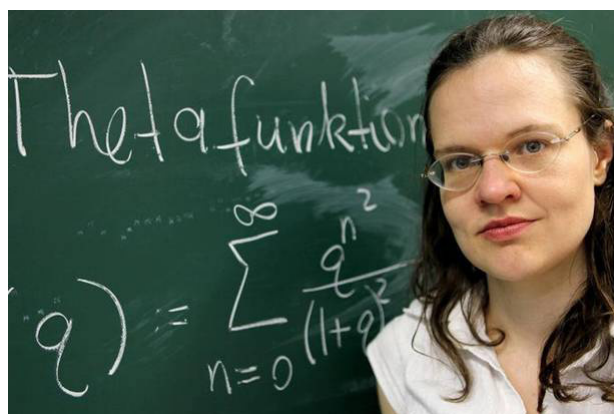
Chemistry and the Princeton Institute for the Science and Technology of Materials, and Yang Jiao, a graduate student in the Department of Mechanical and Aerospace Engineering] have made a major advance in addressing a twist in the packing problem, jamming more tetrahedra--solid figures with four triangular faces--and other polyhedral solid objects than ever before into a space. The work could result in better ways to store data on compact discs as well as a better understanding of matter itself. Henry Cohn, a mathematician with Microsoft Research New England in Cambridge, Mass. says, 'the Princeton researchers, have thrown out a new challenge to the math world. Their results could be considered a 21st Century analogue of Kepler's conjecture about spheres. And, as with that conjecture, I'm sure their work will inspire many future advances.'" (from the Princeton University press release)

The research is published in the August 13 issue of Nature and is featured on the cover.



BRINGMANN RECEIVES ONE MILLION EURO KRUPP PRIZE

Kathrin Bringmann, a number theorist at the University of Minnesota and the University of Cologne, has been awarded the Alfried Krupp-Förderpreis for Young Professors. The one million Euro prize, for a five-year period, is awarded by the Alfried Krupp von Bohlen und



Halbach Foundation. She is the third mathematician to win the annual prize--Ursula Gather received the prize in 1987 and Albrecht Böttcher won in 1992. Bringmann is well known for her joint work with her postdoctoral mentor Ken Ono (University of Wisconsin-Madison) on Ramanujan's mock theta functions, which Ramanujan wrote about in 1920 as he was dying, although he did not provide details about the functions, including their definition. Following seminal work of the Dutch mathematician Sander Zwegers, Bringmann and Ono have built and applied their theory to many topics in mathematics: partitions and q-series, Moonshine, and elliptic curves, to name a few. On the mock theta functions, Bringmann said, "Imagine that a famous composer left, after his death, a symphony written in a secret code that only he himself could read." More information about the prize and Bringmann's research (in German) is at the DMV (Deutsche Mathematiker-Vereinigung) website.



EUROPEISKE PRESIDENTER

Her er presidentene i de europeiske matematikkforeningene samlet til møte i Polen i mai i år.

