Once every four years, mathematicians from various parts of the world gather under the auspices of the International Mathematical Union (IMU) to talk about their research work, communicate with each other and witness the presentation of the prestigious Fields medal.

The awarding of the Fields medal was initiated in 1936 at Oslo and, except for a hiatus of fourteen years covering the Second World War, has generated since then much interest and expectations within the mathematical community. The Fields medal is popularly regarded as the equivalent of the Nobel prize in mathematics. A notable difference is that the former is traditionally awarded to mathematicians below the age of forty with the objective that "while it was in recognition of work already done it was at the same time intended to be an encouragement for further achievement on the part of the recipients and a stimulus to renewed effort on the part of others" - in the words of John Charles Fields (1863 - 1932), a mathematician and Chairman of the Committee of the 1924 International Mathematical Congress, who bequeathed part of his estate to the setting up of a trust for the award. On the material side, each recipient of the award receives a gold medal and a sum of 1500 Canadian dollars.

The complete list of Fields medallists is given below. The areas in which the award-winning contributions were made are also indicated.

1936, Oslo
Lars Valerian Ahlfors (b. 1907), Harvard University; Complex analysis
Jesse Douglas (b. 1897), Massachusetts Institute of Technology; Minimal surfaces
Laurent Schwartz (b. 1915), University of Nancy; Analysis
Alte Selberg (b. 1917), Institute for Advanced Study, Princeton; Number theory
Kunihiko Kodaira (b. 1915), Princeton University; Differential topology
Jean-Pierre Serre (b. 1926), University of Paris; Number theory, topology
Klaus Friedrich Roth (b. 1925), University of London; Number theory
René Thom (b. 1923), University of Strasbourg; Differential topology
Lars V. Hörmander, University of Stockholm; Several complex variables
John Willard Milnor (b. 1931), Princeton University; Differential topology
Michael Francis Atiyah (b. 1929), Oxford University; Topology
Paul Joseph Cohen (b. 1934), Stanford University; Set theory
Alexandre Grothendieck, University of Paris; Algebraic geometry
Stephen Smale (b. 1930), University of California, Berkeley; Global analysis
Alan Baker, Cambridge University; Number theory
Heisuke Hironaka, Harvard University; Algebraic geometry
Sergei P. Novikov (b. 1938), Moscow
This year the Congress will be held at Helsinki, Finland, from 15 August to 23 August. In addition to the presentation of the Fields medals at the opening ceremony, the mathematical activities will include seventeen one-hour plenary addresses in the form of broad surveys of recent progress in various fields of mathematics, more than one hundred 45-minute addresses in specified sections and numerous 10-minute oral communications by participants. A new feature of this Congress is the introduction of 1½-hour poster sessions whereby participants may display their work on given bulletin boards. During the Congress, a symposium on the Mathematical Training of Mathematics Teachers will be organized by the International Commission on Mathematical Institution.

The one-hour plenary addresses and the 45-minute addresses are given below.

**One-hour plenary addresses**

L. V. Ahlfors  
Quasiconformal mappings, Teichmüller spaces, and Kleinian groups

A. P. Calderon  
Commutators, singular integrals on Lipschitz curves and applications

A. Connes  
On the classification of von Neumann algebras

R. Dobrushin  
Classical statistical mechanics as a
branch of probability theory

D. Edwards

The topology of manifolds and cell-like maps

Gorenstein

The classification of finite simple groups

Kashiwara

Micro-local analysis

Krasovskii

Control under uncertain information and differential games

Langlands

Automorphic representations and L-functions

Manin

Modular forms and number theory

Novikov

Linear operators and integrable Hamiltonian system

Penrose

The complex geometry of the natural world

Schmid

Representations of semisimple Lie groups

N. Shiryayev

On absolute continuity and singularity of probability measures on functional spaces

P. Thurston

Geometry and topology in dimension three

Weil

History of mathematics: why and how

T. Yau

The role of partial differential equations in differential geometry

45-minute addresses in sections

1. Mathematical logic and foundations of mathematics

H. Conway

Arithmetical operations on transfinite numbers
2. Algebra

M. Aschbacher  A survey of the classification program for finite simple groups of even characteristic

K. S. Brown  Cohomology of groups

B. Fischer  Sporadische endliche einfache Gruppen

M. Hochster  Cohen-Macaulay rings and modules

V. Kac  Lie superalgebras

W. van der Kallen  Generators and relations in algebraic K-theory

V. P. Platonov  Algebraic groups and reduced K-theory

A. V. Roiter  Matrix problems

A. Suslin  The cancellation problem for projective modules and some related topics

3. Number theory

G. Choodnovsky  Algebraic independence of values of exponential and elliptic functions

J. H. Coates  The arithmetic of elliptic curves with complex multiplication

H. Iwaniec  Sieve methods

N. M. Katz  P-adic L-functions

G. Shimura  On some problems of algebraicity

R. Tijdeman  Upper bounds for solutions of
exponential diophantine equations

L. C. Vaughan
Recent work in additive prime number theory

I. Bogoyavlensky
On manifolds, satisfying Einstein equations with hydrodynamical stress-energy tensor

J. M. Connelly
Conjectures and open questions in rigidity

M. do Carmo
Minimal surfaces

M. Gromov
Synthetic geometry

E. L. Harlamov
Real algebraic surfaces

J. G. Larman
Recent advances in convexity

K. Osserman
Isoperimetric inequalities and eigenvalues of the laplacian

K. Shiohama
Convex sets and convex functions on complete manifolds

A. W. Cannon
The recognition problem: what is a topological manifold? A solution to the double suspension problem for homology spheres.

S. E. Cappell
Singularities of immersions and embeddings

A. J. Casson
Knot cobordism

D. Fuks
New results on the characteristic classes of foliations

A. Hatcher
Linearization in 3-dimensional topology
J. Lin  The topology of finite H-spaces
I. Madsen  Spherical space forms
S. Mardešić  Shape theory
D. C. Ravenel  Complex cobordism and its applications to homotopy theory
J. E. West  Hilbert cube manifold - meeting ground of geometric topology and absolute neighborhood retracts

6. Algebraic geometry

S. Bloch  K-theory and zeta functions of elliptic curves
F. A. Bogomolov  Unstable vector bundles and families of curves on surfaces
D. Gieseker  Some applications of geometric invariant theory to moduli problems
E. Looijenga  Homogeneous spaces associated to certain semiuniversal deformations
C. Procesi  Standard monomials, Young diagrams and invariant theory
S. Ramanan  Vector bundles on algebraic curves
K. Ueno  Classification of algebraic manifolds

7. Lie groups, algebraic groups, automorphic functions

I. Bernstein  Induced representations of GL(n) over p-adic field
W. Casselman  Jacquet modules for real groups
V. G. Drinfeld  Langlands' conjecture for GL(2) over functional fields
G. R. Kempf  Algebraic representations of reductive groups
8. Real and functional analysis

J. Beckner
Basic problems in Fourier analysis

S. V. Boskarov
Method of averagings in the theory of orthogonal series

C. Foias
Contractive intertwining dilations and waves in layered media

M. Garsia
Some combinatorial methods in real analysis

M. Nikishin
The Pade approximants

K. Nikol'skii
What problems the spectral theory and complex analysis can solve one for another?

9. Complex analysis

A. Baernstein
How the *-function solves extremal problems

A. Griffiths
Holomorphic mappings in one and several complex variables

B. Korenblum
Analytic functions of unbounded characteristic and Beurling algebra

J. Moser
The holomorphic equivalence problem for real hypersurfaces

Y. T. Siu
Extension problems in several complex variables
10. Operator algebras and group representations

J. Dixmier
Enveloping algebras

R. G. Douglas
Extensions of C*-algebras and algebraic topology

A. Kirilov
Infinite dimensional groups; their orbits and representations

S. Sakai
Recent developments in the theory of unbounded derivations in C*-algebras

J. R. Wallach
The spectrum of compact quotients of semi-simple Lie groups

G. J. Zuckerman
Coherent translation of characters of semi-simple Lie groups

11. Probability and mathematical statistics

A. Borokov
Rate of convergence and large deviations for invariance principle

C. Dellacherie
A survey of the theory of stochastic integrals

M. Fukushima
Dirichlet spaces and additive functionals of finite energies

P. Revesz
Some properties of the coin-tossing sequence

S. R. S. Varadhan
Some problems of large deviations

A. D. Wentzell
Large deviations for stochastic processes
12. Partial differential equations

Almgren, Jr. J. Minimal surfaces: tangent cones, singularities, and topological types

Ivrii, A. Propagation of singularities of solutions of symmetric hyperbolic systems

McKean H. Riemann surfaces of infinite genus arising from nonlinear wave equations

Melrose B. The singularities of solutions to boundary value problems

Rabinowitz P. Critical points of indefinite functionals and periodic solutions of differential equations

Sjostrand J. Eigenvalues for some hypoelliptic operators and related constructions

Weinstein A. Eigenvalues of the laplacian plus a potential

13. Ordinary differential equations and dynamical systems

Bruno D. Formal and analytical integral sets

Herman R. Recent results on differentiable conjugacy of diffeomorphisms

Ilyashenko D. Global and local aspects of geometric theory of complex differential equations

Mallet-Paret J. Generic theory for functional differential equations

McGehee R. Singularities in classical celestial mechanics

Palis, Jr. J. Bifurcations and moduli of stability

14. Control theory and optimization problems

Brunovsky P. On the structure of optimal feedback
15. Mathematical physics and mechanics

H. Araki
Some topics in quantum statistical mechanics

M. F. Atiyah
Geometrical aspects of Gauge theories

J. L. Bona
Model equations for waves in nonlinear dispersive systems

L. D. Faddeev
Quantum theory solitons

J. Frohlich
The mathematics of phase transitions and critical phenomena

A. M. Jaffe
Introduction to Gauge theories

Ya. G. Sinai
Scaling in the theory of phase transitions

16. Numerical analysis

C. de Boor
Splines and B-splines

J. Nitsche
Finite element approximations to the one-dimensional Stefan problems

P. A. Raviart
Finite elements and duality

A. A. Samarskii
0 cislennom resenii zadac matematicheskoi fiziki

V. Thomée
Galerkin-finite element methods for parabolic equations
Discrete mathematics and mathematical aspects of computer science

W. Haken Combinatorial aspects of some mathematical problems
S. V. Jablonskiǐ On some results in the theory of functional systems
S.-C. Rota Recent progress in combinatorics
G. Rozenberg Some recent developments in formal language theory
C. C. Sims Group theoretic algorithms, a survey
D. Uhlig On the synthesis of self-correcting circuits

18. Mathematics in the social and biological science

R. J. Aumann Recent developments in the theory of the Shapley value
S. I. Rubinow Some contributions to mathematical biology

19. History and education

T. F. Banchoff Computer animation and the geometry of surfaces in 3- and 4-space
A. I. Markushevich Nekotorye voprosy razvitija teorii analitikeskih funkciǐ v XIX veke

Note The Secretary of the Society, Dr Chong Chi Tat, will attend the General Assembly of the IMU on 11-12 August, held in conjunction with the Congress, as the delegate from Singapore with financial support from the IMU fund for travel grant for young mathematicians. He will also participate in the Congress.