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Four Are Awarded Medal in Mathematics

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The Fields Medals, often considered the most prestigious awards in mathematics, have been given to four men in diverse areas of research.

Awarded every four years, the medals went to Elon Lindenstrauss of Princeton, who is moving to Hebrew University next month; Ngo Bao Chau of the University of Paris-Sud in Orsay, who is moving to the [University of Chicago](#); Stanislav Smirnov of the University of Geneva; and Cédric Villani of the Henri Poincaré Institute in Paris. The awards were announced Thursday at the International Congress of Mathematicians conference in Hyderabad, India.

Dr. Lindenstrauss, the first Israeli mathematician to receive a Fields, applied ergodic theory, a field developed to describe the motion of dynamical systems like billiards balls, to problems in number theory. He also showed how quantum mechanics could be mixed into chaos theory.

Dr. Chau, the first Vietnamese mathematician to receive a Fields, proved a proposition, or fundamental lemma, that underlies a three-decade effort by mathematicians to link geometry and number theory.

Dr. Smirnov, who was born in Russia, provided a firm mathematical foundation to simple models used by physicists to describe magnetism or percolation of water through soil.

Dr. Villani, a Frenchman, looked at how order falls apart into disorder in systems like colliding gas molecules.

Named for the mathematician John Charles Fields, the medal is usually limited to researchers 40 and under.

