

Russian mathematics genius shuns the spotlight

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14:59 17 August 2006

[NewScientist.com news service](#)

Justin Mullins

The world of mathematics is in uproar over rumours that its most prestigious prize will be turned down next week by one of its brightest stars.

The Fields Medal, the equivalent of a Nobel Prize in mathematics, is awarded every four years to young mathematicians who have made the biggest impact in their fields. It is due to be presented by the King of Spain in a ceremony in Madrid on Tuesday 22 August.

But Gregori Perelman, who has been widely tipped to receive it, has resigned his post at the Steklov Institute of Mathematics in St Petersburg, Russia, and gone to ground. "Nobody knows where he is," says Marcus du Sautoy, a mathematician at Oxford University in the UK. Perelman is thought to have become disillusioned with mathematics and disassociated himself from the field.

Perelman achieved fame in the mathematics world for his work on the Poincaré Conjecture, one of topology's most celebrated problems. The conjecture, conceived by the French mathematician Henri Poincaré in 1904, relates to the question of whether it is possible to deform a holed doughnut into a sphere by bending and stretching it – without cutting or tearing it.

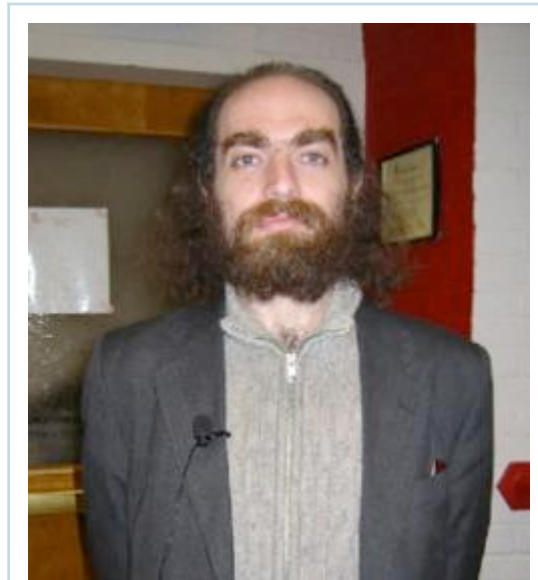
It turns out that there is no way to remove the "hole" in the doughnut and so it cannot be turned into a sphere. However, any shape that has no holes can always be deformed into a sphere. The Poincaré Conjecture and a more general problem, called the Thurston Geometrization Conjecture, assert that the same is true for shapes in higher dimensions.

Unprecedented refusal

Perelman's proof of both problems, published in 2002, received widespread admiration for its inventiveness, even though mathematicians have yet to officially pronounce on its validity. "The consensus is that it is probably correct," says du Sautoy.

The Poincaré Conjecture is also famous as one of the Millennium Prize problems established by the Clay Mathematics Institute in Boston in 2000. The Institute is offering a prize of \$1 million to the first correct proof. "Perelman doesn't seem to be interested in medals or money," du Sautoy notes.

A refusal of a Fields Medal would be unprecedented. In 1966, the German mathematician Alexander Grothendieck refused to pick up his award in Moscow in protest against the Soviet Union's military intervention in Eastern Europe, although he did later accept it. But Grothendieck also became disillusioned with mathematics and left the field. He is now believed to be living as a hermit in Andorra.

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Gregori Perelman, a colossus of mathematical theory, appears to have gone to ground

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Weblinks

[The Clay Mathematics Institute](http://www.claymath.org/)

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[Poincaré Conjecture, Wikipedia](http://en.wikipedia.org/wiki/Poincar%C3%A9_conjecture)

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Printed on Sat Aug 19 15:18:58 BST 2006