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Genius Grigori Perelman shuns fame, lives with mum and is a fine example, says ROBERT MATTHEWS

He looks like someone who lives in a box begging from strangers. The truth is hardly less downbeat: unemployed Grigori Perelman (*right*) lives in penury with his mum in a St Petersburg flat.

Yet Dr Perelman is the latest star to adorn the firmament of celebrity. At lunchtime today, it was announced that he had declined the Fields Medal, the 'Nobel Prize' of mathematics. Dr Perelman is a shoo-in for the $1m reward, awarded by the American financier and maths enthusiast Landon Clay, for solving a century-old problem known as the Poincare Conjecture.

Will the champagne lifestyle go to Dr Perelman's not insubstantial head? Will he reveal top tips on topology to a wide-eyed reporter from *Hello*? Unlikely. Few expected him to turn up to today's award ceremony in Madrid. As for the $1m reward, he seems to find this as thrilling as the prospect of talking to the media. As he told one reporter: "I do not believe anything I say can be of the slightest public interest."

Dr Perelman today declined the Fields Medal, the 'Nobel Prize' of maths

It is a statement that reveals Dr Perelman to be that most elusive of people, a genuine celebrity with no interest in celebrity life.

While luvvies, cooks and cokeheads line up to share their views on everything from Aids to Zimbabwe, Dr Perelman seeks only to be left in peace. While fat cat bosses of failing companies award themselves million-dollar bonuses, Dr Perelman is content with a hard job well done. He is not alone. Tim Berners Lee, inventor of the World Wide Web, is one of many who chose to keep their brilliant lights under bushels.

We should all celebrate the paradox that Dr Perelman's failure to appear today is glorious proof that such people still exist.

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WHAT DID HE SOLVE?
THE FIRST POST GUIDE TO THE POINCARE CONJECTURE
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What exactly did Perelman prove?

SEND TO A FRIEND

The Poincare Conjecture defied proof for over a century, says ROBERT MATTHEWS

The problem solved by Dr Grigori Perelman will make anyone who last did maths at school feel glad to have quit when they did.

First identified by the eponymous French mathematician in 1904, the Poincare Conjecture states that every simply connected closed 3-manifold is homeomorphic to a 3-sphere. For all its comprehensibility, it is a statement that might as well be in Chinese. It is even worse than algebra: where are "x", "y" and the equals sign?

But to mathematicians, it captures the essence of a problem that has long blocked their path towards understanding the concept of shape.

While we all think we know when something is flat or curved, square or round, mathematicians always demand something far more rigorous – in this case, a set of rules that will infallibly reveal the true nature of any given surface.

Henri Poincare stated that every simply connected closed 3-manifold is homeomorphic to a 3-sphere

Around a century ago, Poincare believed he had found such a rule. It centred on the behaviour of an imaginary loop sitting somewhere on a sphere. If such a loop starts to shrink, it will always end up as single point. In contrast, if it is draped round the ring of a doughnut, it would only shrink so far before falling down the hole in the middle - thus proving a doughnut is not a sphere.

Poincare suspected his loop test would always reveal if a given surface is spherical. But while it obviously worked with the two-dimensional surfaces of balls in our world, he couldn't prove it would for balls with three-dimensional surfaces, known technically as 3-spheres.

Poincare's idea remained a conjecture - a polite term for a guess - for decades. Mathematicians only started to think it was even plausible in the late 1970s, and only now has Dr Perelman proved it for sure.

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Why Dr Perelman is an example to us all

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