



Press Release
Max-Planck-Institut für extraterrestrische
Physik
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Shaw Prize awarded to Reinhard Genzel

Reinhard Genzel, director of the Max Planck Institute for extraterrestrial Physics (MPE) in Garching, Germany, has been awarded this year's Shaw Prize for Astronomy for his outstanding contribution in demonstrating that the Milky Way contains a supermassive black hole at its centre. The Shaw Prize is awarded annually by the Shaw Prize Foundation in Hong Kong in the Life Sciences, Mathematical Sciences and Astronomy, each of the three prizes bearing a monetary award of one million US dollars.



Reinhard Genzel

By developing state-of-the-art astronomical instruments and carrying out a tour-de-force programme of observing our Galactic Centre for many years at the highest possible angular resolution (in part aided with the novel technique of adaptive optics), Reinhard Genzel and his MPE team have made decisive measurements that have proven the existence of a black hole with a mass a few million times that of the sun in the centre of the Milky Way. The existence of such a supermassive black hole was first proposed in 1969 by Donald Lynden-Bell and Martin Rees.

In 2002 an international team led by Reinhard Genzel observed a star that takes only 15 years to orbit the Galactic Centre, while it was moving at a speed of nearly 30 million kilometres per hour and located only 17 light-hours away from the location of the black hole. These measurements excluded all other explanations as to the nature of the mass concentration in the Galactic Centre and proved the existence of a central black hole beyond any reasonable doubt. The supermassive black hole in the centre of the Milky Way thus now constitutes the most conclusive empirical proof that the black holes predicted by Einstein's General Relativity actually exist.

It is now thought that supermassive black holes are present in the centres of nearly all massive galaxies and that they play a fundamental role in the formation and evolution of these galaxies. That is because the accretion of matter onto black holes can release enormous amounts of energy which then provides an important feedback onto the central galaxy. The most extreme of these objects are the luminous quasars.

Reinhard Genzel is scientific member of the Max Planck Society and heads the group for Infrared and Submillimetre Astronomy at the MPE. In addition he holds the position of

professor in the Physics Department of the University of California in Berkeley, USA, and is an honorary professor at the Ludwig Maximilians University in Munich, Germany.

This is the fifth year that the Shaw Prize has been awarded. The presentation ceremony is scheduled for Tuesday, September 9, 2008 in Hong Kong.

<http://www.shawprize.org/en/index.html>

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