

NOVEMBER 21ST, 2022

START: 6 P.M.

AUSTRIAN ACADEMY OF SCIENCES
FESTSAALDR. IGNAZ SEIPEL-PLATZ 2
1010 VIENNA

AKADEMIEVORLESUNGEN

LITTROW-LECTURE

©Max Planck Institute for Extraterrestrial Physics



THE BLACK HOLE AT THE CENTER OF THE MILKY WAY

REINHARD GENZEL

Director, Max Planck Institute for Extraterrestrial Physics (MPE), Garching
Professor of the Graduate School, Physics and Astronomy Departments,
University of California, Berkeley, USA

WELCOME**JOÃO ALVES**

Chair of the Commission for Astronomy of the Austrian Academy of Sciences

More than one hundred years ago, Albert Einstein published his Theory of General Relativity (GR). One year later, Karl Schwarzschild solved the GR equations for a non-rotating, spherical mass distribution; if this mass is sufficiently compact, even light cannot escape from within the so-called event horizon, and there is a mass singularity at the center. The theoretical concept of a 'black hole' was born, and was refined in the next decades by work of Penrose, Wheeler, Kerr, Hawking and many others. First indirect evidence for the existence of such black holes in our Universe came from observations of compact X-ray binaries and distant luminous quasars. I will discuss the forty year journey, which my colleagues and I have been undertaking to study the mass distribution in the Center of our Milky Way from ever more precise, long term studies of the motions of gas and stars as test particles of the space time. These studies show the existence of a four million solar mass object, which must be a single massive black hole, beyond any reasonable doubt.

Reinhard Genzel, born 1952 in Bad Homburg v. d. H., Germany, is one of the Directors of Max Planck Institute for Extraterrestrial Physics, Professor in the Graduate School of the University of California, Berkeley and an Honorary Professor at the Ludwig Maximilian University, Munich. He is a Scientific Member of the Max Planck Society and a member of the US National Academy of Sciences.

His research interests include astrophysics of galactic nuclei, star formation, kinematics and cosmic evolution of galaxies, massive black holes and experimental infrared, submillimeter and millimeter astronomy. He has received numerous honours and awards, including the Shaw Prize of The Shaw Prize Foundation and the Crafoord Prize in Astronomy. In 2020, he received the Nobel Prize in Physics, jointly with Andrea Ghez, for the discovery of a supermassive compact object at the centre of our galaxy.

The Littrow-Lectures, a part of the Academy Lectures of the Austrian Academy of Sciences, examine topics from the fields of Astronomy, Astrophysics and Space Research. The series is named after two of the most important Austrian astronomers of the nineteenth century, Joseph Johann and Karl Ludwig von Littrow, who were both directors of the university observatory in Vienna.

Please register at: www.oeaw.ac.at/anmeldung/akademievorlesungen

CONTACT:

Mag. Sabrina Radax, Austrian Academy of Sciences, sabrina.radax@oeaw.ac.at