



PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik
der Johann Wolfgang Goethe-Universität Frankfurt

Mittwoch, den 11.04.2018, 16 Uhr c.t.
Großer Hörsaal, Raum _0.111,
Max-von-Laue-Str. 1



Dr. Stefan Gillessen

Max-Planck-Institut für extraterrestrische Physik,
Garching

"The Galactic Center: A unique astrophysical laboratory"

Located at a distance of 8kpc only, the Galactic Center allows studying a galactic nucleus in unparalleled detail. With the advent of high-resolution, near-infrared instrumentation in the last decade it became possible to follow individual stellar orbits around the radio source Sgr A* with orbital periods as short as 12 years. The orbits provide compelling evidence for the massive black hole paradigm. The next generation near-infrared instrument GRAVITY aims at interferometrically combining the light of the four telescopes of ESO's VLT. The higher resolution will allow monitoring stellar orbits with orbital periods of 1 year only, and the relativistic prograde periastron precession gets accessible. The astrometric accuracy of GRAVITY is of order of the event horizon size of Sgr A*. This means that we might have access to measuring the spin of Sgr A*. In the past few years the small gas cloud G2 has been approaching Sgr A*. We were able to follow the tidal evolution of G2 for a decade, beautifully showing how the object got stretched ever more and how it passed the point of closest approach in 2014. The cloud is a unique probe of Sgr A*'s atmosphere.

Die Dozenten der Physik

local host: Prof. Dr. Luciano Rezzolla, rezzolla@itp.uni-frankfurt.de