Tel Aviv University
The Raymond and Beverly Sackler
School of Physics and Astronomy

Special Physics Colloquium

High Resolution Astronomy with Infrared Interferometry

Prof. Reinhard Genzel, Max-Planck Institute for Extraterrestrial Physics, Garching, FRG & Departments of Physics and Astronomy, University of California, Berkeley, USA

The Center of our Galaxy is a unique laboratory for exploring the astrophysics around a massive black hole and testing General Relativity in this extreme environment. I will discuss the results of a major campaign of observing the Galactic Center in 2017/2018 with three instruments at the European Southern Observatory's VLT, including the novel GRAVITY interferometric beam combiner of the four 8-meter telescopes. During this period the B-star S2 completed a peri-passage at ~1400 Schwarzschild radii around the compact radio source SgrA*, and permitted for the first time a test of the equivalence principle and the detection of the first post-Newtonian orbital elements in a classical 'clock experiment' around a massive black hole. During bright states ("flares") we detect centroid motions and polarization changes of the infrared emission of SgrA* itself. These can be well fitted by near face-on, circular orbits near the innermost circular orbit (ISCO). The mass inferred at ISCO is the same as that within the S2 orbit, further strengthening the evidence that SgrA* is a Kerr black hole.
I will conclude by summarizing some of the extragalactic results with GRAVITY and the possibility for future upgrades of optical interferometry.

WHEN: 16:00 Monday, April 29, 2019

WHERE: Porter Auditorium, Environmental Studies Building

Light refreshments will be served outside the hall at 15:45