



PHYSIKALISCHES KOLLOQUIUM

Referent:

Prof. Dr. Karl Mannheim

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Thema:

Energy extraction from accreting black holes

Zeit und Ort:

Dienstag, 17.12.2019, 16:40 Uhr
Recknagel-Bau, Hörsaal REC/C213, Haeckelstr. 3

Leiter:

Prof. Dr. Kai Zuber

Kurzfassung:

Interstellar space is crowded with black holes, objects so compact that not even light can escape from them. Recent detections of gravitational waves from mergers of black holes or the picture of a shadow imprinted by the supermassive black hole in the giant elliptical galaxy Messier 87 onto the glow of surrounding gas are celebrated as breathtaking confirmations of general relativity. Now, the flickering of gamma rays from remote extragalactic objects adds another window to witness the physical realm of Einstein's legacy: Lightning flashes at TeV energies lasting only a *few minutes* driven by particle acceleration close the ergosphere of supermassive black holes confirm energy extraction from the spinning black holes by electrodynamical processes predicted by Penrose (1969) and by Blandford and Znajek (1977). The association of gamma-ray flares with high-energy neutrinos indicates that proton acceleration plays a key role, possibly solving the century-old question about where the highest energy cosmic ray nuclei in nature originate from.

Biographie:

1983-1989	Physics studies in Heidelberg and Bonn (Dipl.-phys.).
1989-1992	PhD at MPI für Radioastronomie in Bonn 1989-1992 (Dr. rer. nat.), advisor: Peter Biermann
1992-1993	Postdoc at MPIfR
1993-1999	Akademischer Rat a.Z., Universitäts-Sternwarte Göttingen
1995	ITP UC Santa Barbara Ludwig-Biermann-Award (Astronomische Gesellschaft)
1997	Habilitation in Physics
1999-2001	Heisenberg Fellow
Since 2001	Chair of Astronomy and Astrophysics, JMU Würzburg

Key research areas: High-energy radiation processes, extragalactic jets, compact objects, metagalactic background radiation, indirect dark matter detection

Mitglied von:



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