



INVITATION

as part of the Gravitational Physics Literature Seminar

to the talk by

David KUBIZNAK
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on

“Remarkable symmetries of rotating black holes”

Abstract:

It is well known that the Kerr geometry admits a non-trivial Killing tensor and its ‘square root’ known as the Killing-Yano tensor. These two objects stand behind the Carter’s constant of geodesic motion as well as allow for separability of test field equations in this background. The situation is even more remarkable in higher dimensions, where a single object -- the principal Killing-Yano tensor – generates a tower of explicit and hidden symmetries responsible for integrability of geodesics and separability of test fields around higher-dimensional rotating black holes.

Interestingly, similar yet different structure is already present for the slowly rotating black holes described by the ‘magic square’ version of the Lense-Thirring solution, giving rise to a geometrically preferred spacetime that can be cast in the Painlevé-Gullstrand form and admits a tower of exact rank-2 and higher rank Killing tensors whose number rapidly grows with the number of spacetime dimensions.

Time: Wednesday, 22 January 2025, 2:15 p.m.

Location: Seminar Room A, Währinger Straße 17, 1090 Vienna, 2nd floor

<https://univienne.zoom.us/j/6540036841?pwd=SytyVkZJZzNyRG9lMm13ejlHeHRRUT09>