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WITHDRAWN (G) The Hidden Symmetries of Slowly Rotating Black holes

In this talk I present a novel family of slowly rotating black hole solutions in four, and higher dimensions, that extend the well known Lense–Thirring spacetimes to the higher-dimensional multiply-spinning case, with an ansatz that is not necessarily fully characterized by a single (static) metric function. This generalization lets us study slowly rotating spacetimes in various higher curvature gravities as well as in the presence of non-trivial matter. As "exact metrics" in their own right, the new (non-vacuum) spacetimes feature the following two notable properties:
i) the ansatz can be recast in Painlevé–Gullstrand form (and thence is manifestly regular on the horizon)
ii) and it admits a tower of exact rank-2 and higher rank Killing tensors.

Remarkably, the rapidly growing tower of exact Killing tensors exceed the number of Killing vectors in higher dimensions give a first example of a physical spacetime with more hidden than explicit symmetries

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