

## GR 15: Other topics

Time: Tuesday 18:10–18:50

Location: SPA SR220

GR 15.1 Tue 18:10 SPA SR220

**Spinning gauged boson stars in anti-de Sitter spacetime** —  
 •OLGA KICHAKOVA, EUGEN RADU, and JUTTA KUNZ — University of  
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We study axially symmetric solutions of the Einstein-Maxwell-Klein-Gordon equations describing spinning gauged boson stars in a 3+1 dimensional asymptotically AdS spacetime. These smooth horizonless solutions possess an electric charge and a magnetic dipole moment, their angular momentum being proportional to the electric charge. A special class of solutions with a self-interacting scalar field, corresponding to static axially symmetric solitons with a nonzero magnetic dipole moment, is also investigated.

GR 15.2 Tue 18:30 SPA SR220

**Hairy Wormholes and Bartnik-McKinnon Solutions** — •OLGA  
 HAUSER<sup>1</sup>, RUSTAM IBADOV<sup>2</sup>, BURKHARD KLEIHAUS<sup>1</sup>, and JUTTA KUNZ<sup>1</sup>

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We consider Lorentzian wormholes supported by a phantom field and threaded by non-trivial Yang-Mills fields, which may be regarded as hair on the Ellis wormhole. Like the Bartnik-McKinnon solutions and their associated hairy black holes, these hairy wormholes form infinite sequences, labeled by the node number  $k$  of their gauge field function. We discuss the throat geometry of these wormholes, showing that odd- $k$  solutions may exhibit a double-throat, and evaluate their global charges. We analyze the limiting behavior exhibited by wormhole solutions as the gravitational coupling becomes large. The even- $k$  solutions approach smoothly the Bartnik-McKinnon solutions with  $k/2$  nodes, while the odd- $k$  solutions develop a singular behavior at the throat in the limit of large coupling. In the limit of large  $k$ , on the other hand, an embedded Abelian wormhole solution is approached, when the throat is large. For smaller throats the extremal Reissner-Nordström solution plays a fundamental role in the limit.