Black Holes, Neutron Stars, and Gravitational Waves @ Black Sea



Contribution ID: 3

Type: Oral presentation

Well-posedness and gravitational collapse of self-interacting vector fields

Thursday 19 June 2025 12:20 (15 minutes)

I will discuss the Cauchy problem for self-interacting massive vector fields, often facing instabilities and apparent pathologies when performing numerical simulations. After showing that these issues are due to the breakdown of the well-posedness of the initial-value problem, I will show how the pathologies can be classified, building on previous work done for Ø-essence, and how these issues can be avoided by "fixing the equations", enabling stable numerical evolutions in spherical symmetry. Finally, I will display initial configurations for the massive vector field which lead to gravitational collapse and the formation of black holes in theories with cubic self-interactions.

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