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Black hole initial data within the parabolic-hyperbolic formulation

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The parabolic-hyperbolic formulation of the initial data of the Einstein equations for multiple black holes systems has been proposed recently [1-3]. It provides an alternative to the traditional conformal method [4]. During the talk, a numerical implementation of the approach to the initial data problem of general relativity will be presented. It will involve black holes described by a metric of a Kerr-Schild form.

[1] I.Racz, Constraints as evolutionary systems, Class. Quant. Grav. 33, 015014 (2016).

[2] I.Racz, A simple method of constructing binary black hole initial data, arXiv:1605.01669 (2017).

[3] I.Racz, On the ADM charges of multiple black holes, arXiv:1608.02283 (2017).

[4] G.B.Cook, Initial data for numerical relativity, Living Rev. Rel. 3, 5 (2000).

Author: NAKONIECZNA, Anna (University of Warsaw, Poland)

Co-authors: NAKONIECZNY, Łukasz (University of Warsaw, Poland); RACZ, Istvan (Wigner RCP, Budapest, Hungary)

Presenter: NAKONIECZNA, Anna (University of Warsaw, Poland)

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