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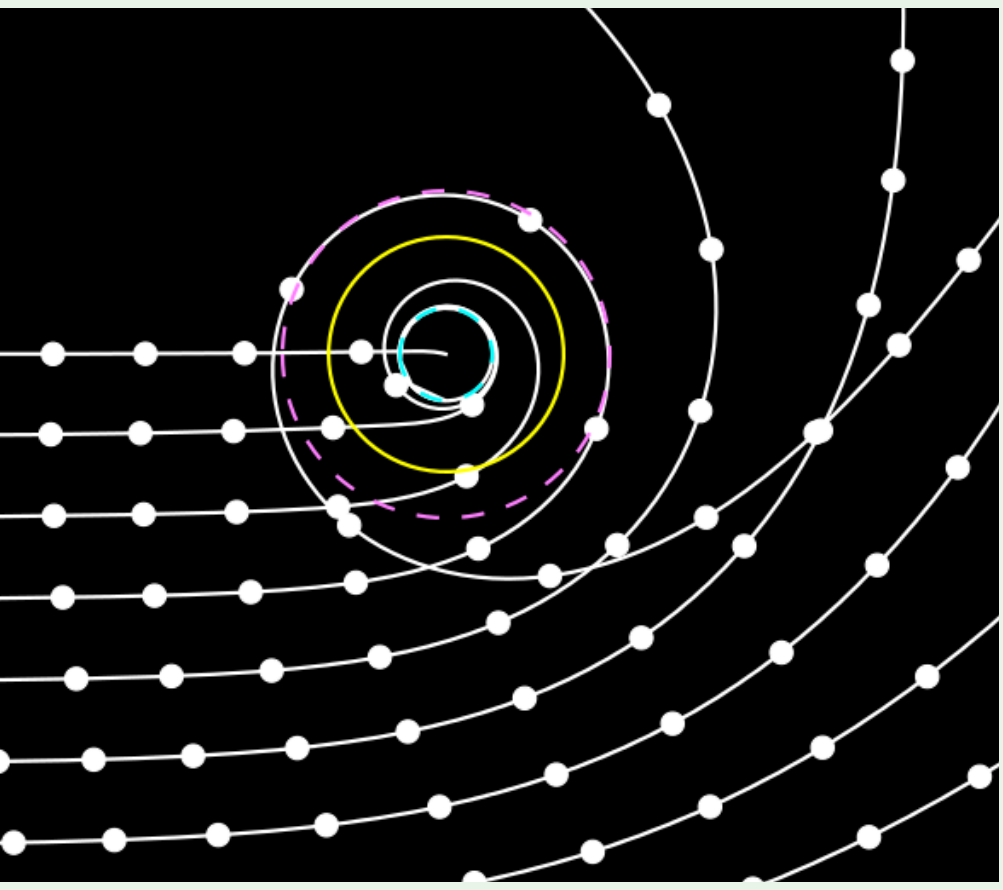

the MAGNIFICENT KERR METRIC

2014 CRM-FIELDS-PIMS PRIZE RECIPIENT

NIKY KAMRAN

JAMES MCGILL PROFESSOR, MCGILL UNIVERSITY

MONDAY, OCTOBER 20, 2014 AT 3:30 P.M. • FIELDS INSTITUTE, ROOM 230

The Kerr metric is a two-parameter family of exact solutions of the Einstein field equations describing the outer space-time geometry of a rotating black hole in equilibrium. It has a rich structure and enjoys a remarkable set of geometrical and analytical properties. These led the astrophysicist Subrahmanyan Chandrasekhar to write about the Kerr metric that *"it has many properties that have the aura of the miraculous about them"*.

The importance of the Kerr metric has motivated a great deal of research on the long time behaviour of the solutions of wave equations in this background. One of the ultimate goals of this effort has been to prove the non-linear stability of the Kerr metric, a problem which is still open. We will survey some significant advances made in the study of wave equations in the Kerr geometry, and indicate some perspectives.

Prof. Niky Kamran has spent his career in Canada, working in the areas of analysis and differential geometry. His work is remarkable for its brilliant, original insights, in combination with a deep mathematical culture, representing a wide and varied range of topics of interest.

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The Fields Institute for Research in Mathematical Sciences

222 College Street, Toronto, ON M5T 3J1 Canada • Phone: (416) 348-9710 • Fax: (416) 348-9759 • www.fields.utoronto.ca