The Penrose inequality with suboptimal constant

Edward Bryden
Universiteit Antwerpen

`Edward.Bryden@uantwerpen.be`

Abstract

There is a standard picture of the long-time evolution of isolated gravitational systems. Although the arguments made to produce this picture are physically motivated, the full story has not been mathematically proven. In order to probe the veracity of this story, Roger Penrose showed that if the picture is true, then there must be a constant which relates the area of black holes to the mass of the gravitational system. In the case that this question reduces to a statement in Riemannian geometry, this result has been proven with an optimal constant. In this talk I will present a proof for the general case that such a constant exists, and provide a very rough upper bound for it.