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Accretion of a relativistic kinetic gas into a black hole

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We analyze the accretion of gas into a black hole background space-time in the context of relativistic kinetic theory. The state of the gas is described by a distribution function which has to satisfy the general relativistic Boltzmann equation.

In the first part of this work, we describe a method to find the most general solution of this equation in the collisionless case.

In the second part, we apply our result to the case of a radial flow propagating on a nonrotating black hole. We compute the accretion rate and compare it to the one of the Michel fluid flow solution, clarifying previous results in the literature.

Collaboration

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