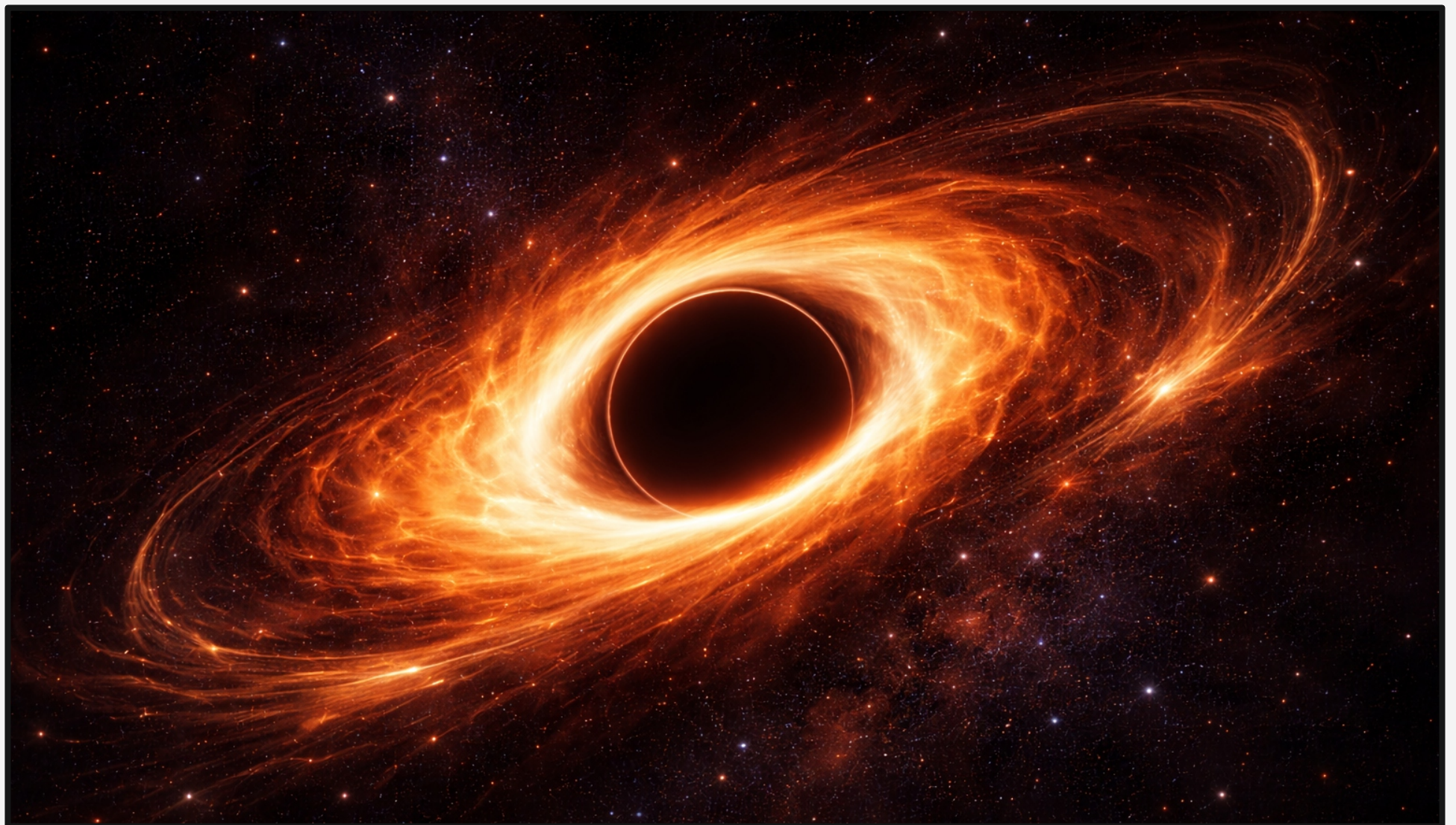


An overview of nonlinear electrodynamics and its applications in gravity

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Strong-field phenomena and quantum field theory predictions indicate that Maxwell's theory admits nonlinear extensions, collectively referred to as nonlinear electrodynamics (NLE). The first part of this talk will focus on the motivation behind NLE theories and their fundamental properties, emphasising the differences with respect to standard Maxwell electrodynamics. We will also place these theories in a broader context by briefly reviewing their applications across various areas of physics. Next, we will discuss several well-known examples of NLE theories, originating either from fundamental theories, such as the Euler-Heisenberg effective theory, or motivated by phenomenological considerations, such as the Born-Infeld electrodynamics. The second part of the talk will be devoted to applications in gravity, in particular, no-soliton theorems and constraints on the prospect of black hole regularisation with NLE fields.

4
fevereiro
2026

Quarta-feira
15:00

Anfiteatro de Física
Escola de Ciências
Gualtar