

Abstract Submitted
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Black Hole Firewalls and Lorentzian Relativity FRIEDWARDT

WINTERBERG, University of Nevada, Reno — In a paper published (*Z. f. Naturforsch.* 56a, 889, 2001) I had shown that the pre-Einstein theory of relativity by Lorentz and Poincare, extended to the general theory of relativity and quantum mechanics, predicts the disintegration of matter by passing through the event horizon. The zero point vacuum energy is there cut-off at the Planck energy, but Lorentz-invariant all the way up to this energy. The cut-off creates a distinguished reference system in which this energy is at rest. For non-relativistic velocities relative to this reference system, the special and general relativity remain a good approximations, with matter held together in a stable equilibrium by electrostatic forces (or forces acting like them) as a solution of an elliptic partial differential equation derived from Maxwell's equation. But in approaching and crossing the velocity of light in the distinguished reference system, which is equivalent in approaching and crossing of the event horizon, the elliptic differential equation goes over into a hyperbolic differential equation (as in fluid dynamics from subsonic to supersonic flow), and there is no such equilibrium. According to Schwarzschild's interior solution, the event horizon of a collapsing mass appears first as a point in its center, thereafter moving radially outwards, thereby converting all the mass into energy, explaining the observed gamma ray bursters.

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