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A novel definition of entropy and application to black holes TAHA MALIK, RAFAEL LPEZ-MOBILIA, University of Texas at San Antonio — Typically, the entropy of an isolated system in equilibrium is calculated by counting the number of accessible micro states, or in more general cases by using the Gibbs entropy formula. In irreversible processes entropy spontaneously increases, and this is understood from statistical arguments. We propose a new definition of entropy directly based on the level of irreversibility of a process. This formulation agrees in first approximation with the usual methods of calculating entropy and can be readily applied in the case of a black hole in the semi classical regime.

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