

## Thermodynamics of Stable Micro Black Holes Production by Modeling from the LHC

**Authors :** Aref Yazdani, Ali Tofighi

**Abstract :** We study a simulative model for production of stable micro black holes based on investigation on thermodynamics of LHC experiment. We show that how this production can be achieved through a thermodynamic process of stability. Indeed, this process can be done through a very small amount of powerful fuel. By applying the second law of black hole thermodynamics at the scale of quantum gravity and perturbation expansion of the given entropy function, a time-dependent potential function is obtained which is illustrated with exact numerical values in higher dimensions. Seeking for the conditions for stability of micro black holes is another purpose of this study. This is proven through an injection method of putting the exact amount of energy into the final phase of the production which is equivalent to the same energy injection into the center of collision at the LHC in order to stabilize the produced particles. Injection of energy into the center of collision at the LHC is a new pattern that it is worth a try for the first time.

**Keywords :** micro black holes, LHC experiment, black holes thermodynamics, extra dimensions model

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