

# A Particle System with Explosions: Law of Large Numbers for Density of Particles and the Blow-Up Time

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## Resumo/Abstract:

This work is based on the article, of the same title, by Tertuliano Franco and Pablo Groisman. Consider a system of independent random walks in the discrete torus where we will have creation and destruction of particles. Explosions of the amount of particles may also occur. Rescaling the space and rates we get a strong law of large numbers for the density of particles. The limit will be the solution for the heat equation  $\partial_t u = \partial_{xx} u + f(u)$ . In a particular case we also obtain the law of large numbers for the time in which the explosion occurs. We would like to thank FAPEMIG for financial support.