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Territory Covered by N Self-Propelled Brownian Agents in 2 dimensions[1] FRANCISCO J. SEVILLA, LUIS ALBERTO GÓMEZ NAVA, Instituto de Física, UNAM — We consider the problem of the territory covered by N non-interacting self-propelled Brownian agents where self-propulsion is modeled by a non-linear friction term in the Langevin-like equations of motion for each agent. Our study generalizes, to a continuous time and space description, the well known problem of the territory explored by N Random Walkers [1]. Numerical and analytical approaches are presented to exhibit the effects of self-propulsion on the many independent agents exploring two dimensional homogenous regions. Our results may have a wide range of applications in a variaty of non-equilibrium systems.

[1] L Hernan et al. Territory covered by N diffusing particles. Nature 355, 423-426 (1992).

[1]FJSP and LAGN aknowledge PAPIIT-IN113114 and PAEP-PCF-UNAM.

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