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Joseph Robert Galante* (joepe@math.umd.edu), Department of Mathematics, Mathematics Building, University of Maryland, College Park, MD 20742-4015. *Estimating The Speed of Diffusion in the Restricted Circular Planar Three Body Problem*. Preliminary report.

We consider the dynamics of a Sun-Jupiter-Comet system and under some simplifying assumptions, construct a variational principle to show the existence of instabilities for the orbit of the comet. The explicit construction utilizes methods in the spirit of Mather's results as well as computer assistance to provide concrete estimates. The technique allows us to estimate the speed of diffusion of comets, i.e. come up with a realistic lower bound on time it takes a certain class of comets to exit the Solar system. (Received February 13, 2011)