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Babatunde J Falaye* (fbjames11@physicist.net), Ave Santa Barbara 145, Col Planetario Lindavi, 22054 Mexico City, Mexico. *Triangular libration points in the R3BP under combined effects of oblateness, radiation and power-law profile. Preliminary report.*

We study the effects of oblateness up to J_4 of the primaries and power-law density profile (PDP) on the linear stability of libration location of an infinitesimal mass within the framework of restricted three body problem (R3BP), by using a more realistic model in which a disc with PDP is rotating around the common center of the system mass with perturbed mean motion. The existence and stability of triangular equilibrium points have been explored. It has been shown that triangular equilibrium points are stable for $0 < \mu < \mu_c$ and unstable for $\mu_c \leq \mu \leq 1/2$, where μ_c denotes the critical mass parameter. We find that the comprehensive effects of the perturbations have a stabilizing proclivity. Libration points play a very important role in space mission and as a consequence, our results have a practical application in space dynamics and related areas. The model may be applied to study the navigation and stationkeeping operations of spacecraft (infinitesimal mass) around the Jupiter (more massive) -Callisto (less massive) system, where PDP accounts for the circumsolar ring of asteroidal dust, which has a cloud of dust permanently in its wake. (Received October 28, 2015)