

This paper studies numerically the existence, location and stability of equilibrium points under the influence of small perturbations in the Coriolis and centrifugal forces in the restricted four-body problem, where three of the bodies are finite, moving in circles around their centre of mass fixed at the origin of the coordinate system, according to the solutions of Lagrange where they are always at the vertices of an equilateral triangle, while the fourth one is infinitesimal. The fourth body does not affect the motion of the three bodies (primaries). We consider that the two masses of the primaries m_2 and m_3 are equal to μ and the dominant mass m_1 is $1-2\mu$. The allowed regions of motion as determined by the zero-velocity surfaces and the corresponding equipotential curves are given. The equations which determine equilibrium positions of the infinitesimal mass in the rotating coordinate system are found. This is observed that their positions are affected by a small perturbation in the centrifugal force, but are unaffected by that of the Coriolis force. For different values of the perturbation parameter $\beta(\beta=1+\varepsilon', |\varepsilon'| \ll 1)$, we obtain two collinear and six non-collinear equilibrium points. We also examine the linear stability of these equilibrium points for a wide range of the small perturbations and all points found unstable except two ($L_{7,8}$) which are stable