



SDI Review Form 1.6

Journal Name:	<u>British Journal of Mathematics & Computer Science</u>
Manuscript Number:	Ms_BJMCS_30510
Title of the Manuscript:	Existence and stability of equilibrium points under combined effects of oblateness and triaxiality in the restricted problem of four bodies
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	1. The definition of the coordinate system should be added before the introduction of the equation of motion. 2. In Fig. 1, the blue line and the red line are not introduced. The Pixels of the figure is not enough. What's more, the figure looks exactly the same as Reference [14] which does not consider the influence of the oblateness and triaxiality. Please explain. 3. More simulations and analyzes should be added into section 4 with consideration of the variation of the oblateness and triaxial factors, such as characteristic curves of the families which emanate from oblateness and triaxial factors.	(1) The definition of the coordinate system has been added before introduction of the equations of motion. (2) The blue and red lines are now introduced. Our configuration is similar to [14], although we used a slightly different value of the mass parameter μ. The reason is the same as the cited authors, of having the primaries moving in linearly stable circular orbits for a value of the mass parameter less but approximately equals the Routh's critical value. In the same vain, we consider sets of mass and perturbed parameters in order to the Lagrange configuration to be linearly stable. As it is seen, the equations of motion cannot be solved analytically. The point of intersection of the two curves (blue and red) denotes the position of the equilibrium points. We also plotted the two equations in order to we see where the roots exist (where the two curves (blue and red)) intersect each other. In Mathematica, for example, blue line denote Ω_y, where red line denote Ω_y. (3) The stability of each equilibrium points of these ten families were determined using the stability method introduced in 1892 by Lyapunov {Lyapunov, A.M. (1892): The general problem of the stability of motion, Comm. Soc. Math. Kharkov}. The results of the analyses



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		(eigenvalues) are given in tabular form and stability determined in Lypunov sense. We hope to get the simulations (characteristic curves/stability region) in our future works varying mass parameter with other perturbation(s). Meanwhile as stated in our work and in the present case, there are combinations of the parameters where lead the Lagrange configuration to be linearly stable.
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		