Review Form 1.6

Journal Name:	**International Astronomy and Astrophysics Research Journal**
Manuscript Number:	**Ms_IAARJ_79041**
Title of the Manuscript:	**Dark matter in the planetary system**
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.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(https://www.journaliaarj.com/index.php/IAARJ/editorial-policy)

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PART 1: Review Comments

<table>
<tr><th></th><th>Reviewer's comment</th><th>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)</th></tr>
<tr><td><u>Compulsory</u> REVISION comments</td><td>
C1) Theoretical physicists have proposed dozens of new fundamental particles that could explain dark matter. In general, when a new theory is proposed it is customary to frame it in the context of the works commonly accepted by the scientific community working on the field. In particular, the limits (or contradictions) of the so-called current theory, the standard Lambda-Cold Dark Matter (CDM) model of cosmology, have to be clearly highlighted by showing, on the base of new results or investigations, what are the novel elements of the proposed model that are not taken into account by the commonly accepted model. This task has not sufficiently been accomplished by the author. This may be source of objections from the specialists working on the field. The author is asked to fill this gap.
C2) Eq. (31), which provides the azimuthal stress due to the discontinuity between the Newtonian and the Einsteinian dynamics, pops-up in the text of the manuscript with the only mention that it has been obtained on the base of the Prandtl model for a turbulent boundary layer. The author is asked to add some supplementary explanations about the derivation of this relation.
C3) Please, justify from the physical point of view, the assumption of the existence of a constant stress layer in the annulus (R_0) where $R > R_0$.
C4) The author states that "essentially, ordinary matter and dark matter are not two forms of matter". However, the most common view is that dark matter is not baryonic at all, but that it is made up of other, more exotic particles like axions or Weakly Interacting Massive Particles. Author is asked to clarified this aspect.
C5) One prominent theory proposes that dark matter is made of as-yet hypothetical particles called axions that collectively behave like an invisible wave oscillating at a very specific frequency through the cosmos.
By table 2, the author argues that the ratio of ordinary matter to dark matter in the planetary system is a measure of the bounded random walks which are occurring. How does the author conciliate his interpretation of "ratio of the two matters as a measure of bounded random walks" with the existence of axions oscillating at a very specific frequency through the cosmos? More specifically, may the author establish a conceptual link between "bounded random walks" introduced in his model and the oscillation of axions?
C6) The present work deals with dark matter and not with dark energy. However, these are two fundamental quantities that must be taken into account in modelling the planetary system. As known, dark matter slows down the expansion of the universe, while dark energy speeds it up. Dark energy is the far more dominant force of the two, accounting for roughly 68% of the universe's total mass and energy. According to the author's model, what is the ratio between dark energy and the ordinary energy (i.e., not related to dark energy) and what is his interpretation?
C7) Recent investigations confirm that the cosmological constant is the best fit for dark energy, and offers the most precise and accurate estimate yet of its value, researchers said. The finding comes from a measurement of the universe's geometry that suggests our universe is flat, rather than spherical or curved. The value of lambda in cosmology is usually denoted by Ω_Λ and is estimated to be 0.6889±0.0056, according to results published by the Planck Collaboration in 2018. In addition, the following parameters enter in the Lambda-CDM Model of cosmology:
<table>
<tr><th>Parameter</th><th>Symbol</th><th>Determined value</th></tr>
<tr><td>Physical dark matter density</td><td>$\Omega_d h^2$</td><td>0.1188</td></tr>
<tr><td>Age of the universe</td><td>t_0</td><td>13.799×10^9 years</td></tr>
<tr><td>Scalar spectral index</td><td>n_s</td><td>0.9667</td></tr>
<tr><td>Curvature fluctuation</td><td>Δ^2_R</td><td>0.441×10^{-9}</td></tr>
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	amplitude The author is asked to explain why these parameters do not enter in his model.	
Minor REVISION comments	**MR1)** Some relevant concepts introduced in this model need further clarifications. More specifically, - please clarify the meaning of the concept "*the principle of randomness is behind dark matter as the creative agent*"; - please, clarify the sentence stating that the constant stress layer in the annulus impinges on the ordinary matter in the micro-scale analysis and it impinges on the dark matter in the macro-scale analysis.	
Conclusions	The work is interesting and pleasant to read. However, there are many points that need clarification. I advise the author to take into account the questions/suggestions expressed above. In my opinion, this will provide more solidity to the work while avoiding objections from the researchers working in the field.	

PART 2:

	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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Giorgio Sonnino**
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