

## Review Form 1.6

Journal Name:	<a href="#">International Astronomy and Astrophysics Research Journal</a>
Manuscript Number:	Ms_IAARJ_80374
Title of the Manuscript:	Gravitationally Polarized Protons in Interstellar Hydrogen Gas and Dark Matter Generation
Type of the Article	Original Research 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:

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**PART 1: Review Comments**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (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)
<b>Compulsory</b> REVISION comments	<p><b>The authors claim that “the standard model</b> cannot explain hadron data and the presence of dark matter and dark energy. The scalar strong interaction hadron theory SSI [3, 4] has been more successful in accounting for such data. Recently, dark matter and dark energy were recognized to be inherent in SSI which could be extended to account for many such dark phenomena.</p> <p>These findings have been based upon the heuristic assumption that the <i>uu</i> diquark and the <i>d</i> quark in ground state proton in cold, tenuous hydrogen gas are polarized in the direction of the ambient gravitational field emanating from a large mass, e. g., the center of a galaxy, with the heavier diquark lying closer to such a center, as is illustrated in Figure 1.</p> <p>Applications of SSI in e. g. Figure 1 of [8], Figures. 2-3 of [7] and Figures. 2-4 of [6] for generation of dark matter and the equivalent of dark energy and for removal of gravitational singularity are all based upon this polarization of proton”.</p> <p><b>The authors claim to demonstrate the correctness of this assumption. But mostly they have used the equations and results of the references [4, 6, 7, 8]. What the authors of the present paper have specifically done should be elaborated.</b></p> <p><b>The authors claim that cold interstellar hydrogen gas in gravitational field can generate dark matter and dark energy. Is there any experimental proof for it?</b></p> <p><b>In section 2, the authors claim that free hydrogen atoms generate dark matter and dark energy. It should be elaborated and also explain whether it can happen for atoms other than hydrogen in the interstellar medium and if possible in the intracluster medium (ICM).</b></p> <p><b>The abstract has subtitles like “Aims”, “Methodology” and “conclusion”. It is not a standard way of writing a research abstract. Everything should be written under one heading “Abstract”.</b></p> <p><b>In references section, reference 1 is Wikipedia 2021. Wikipedia can not be a reference in a research paper. Besides some more references on dark matter and dark energy should be added (at least up to 3).</b></p>	
<b>Minor</b> REVISION comments	<p>There are typo and grammatical errors throughout the manuscript, especially in abstract and introduction which should be corrected.</p> <p>In equation 1, the symbols should be defined.</p> <p>In equations 5 and 6, the symbol <math>V_s(r)</math> should be defined.</p> <p>Again in section 2, the authors claim that in stars and planets, the hydrogen atoms interact frequently. Explain how it happens for planets, like earth.</p> <p>After equation 7, the authors are using the symbol <math>kly</math>. Write the full form for it.</p> <p>In section 2.3, the authors write “The observed ratio <math> R_{DM}  \approx 5</math> lies between this value and 0.” Give reference for this result.</p> <p>The authors often quote the references as [4 (3-1-11)]. It should be elaborated and written clearly like equations 3-11 in reference [4].</p> <p>In section 3.1, the authors have used the reference as [8 sections 3,4]. It should be</p>	

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	modified. In section 3.4, the abbreviation SM should be written in full form.	
<b>Optional/General</b> comments	The authors have done a good work and I recommend it for publication in International Astronomy and Astrophysics Research Journal, after the corrections.	

**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> (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)
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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