



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_31388
Title of the Manuscript:	Toy model of evolving quantum cosmology with dark energy
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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(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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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	<p>The manuscript is well written, didactically well organized and easy to read.</p> <p>In the Introduction, the authors initially minimize the evidence of the accelerating expansion of the universe by the Ia supernovae, with base in a more extensive statistical analysis by the SALT2 method. They also acknowledge that the usual estimates of the cosmological constant and of the vacuum energy density in terms of the quantum vacuum fluctuations obviously must be far-fetched. They conclude that dark energy must be related with quantum gravity, however not any one of the popular models of quantum gravity. They conclude their introduction, putting much hope on quantum cosmology, which however they consider needs to be improved.</p> <p>In Section 2, the authors list eight workable assumptions by which they believe that the current cosmological observations can be reviewed and refined, thereby favouring the development of quantum cosmology.</p> <p>In Section 3, they apply their definition of the Planck scale Hubble parameter, using the implications of the assumptions in Section 2, determining quantitative relations between the various known cosmological parameters. In the last item 3.6, they assume that the matter universe is a thin spherical shell, rotating at an</p>	<p>Thanking you sir.</p> <p>Modified the paper for better presentation.</p> <p>Abstract is self explanatory.</p> <p>We would like to appeal that, rotation is a natural phenomena for most of the sub-universal objects like galaxies, stars and planets etc [38]. In the current gigantic universe, tracing the 'point of big bang' and tracing the 'rotational axis' are most challenging tasks. First of all, one must believe in their existence. It needs strong theoretical support as well as reliable observational support. Over the last sixty plus years, numerous rotating and expanding general relativity-compatible cosmological models have been developed. An excellent review of this history with possible observational support is provided in Yuri Obukhov's papers [39,40]. For knowing the current status of cosmic rotation, interested readers may refer the works of L.M.Chechin [41]. With reference to $\left(\Omega_M\right)_0 \cong \left(\frac{1}{1+\gamma_0}\right)\left(\frac{1+\sqrt{1+\gamma_0^2}}{\gamma_0^2}\right)$, $R_0 \cong \sqrt{\frac{2}{\left(\Omega_M\right)_0}}\left(\frac{H_0}{c}\right)$ and $M_0 \cong$</p>



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	<p>angular velocity equal to the Hubble parameter. They estimate the current cosmic rotational kinetic energy, coming to the curious conclusion that this rotational kinetic energy is equal to dark energy. My question: How do they define the rotation axis in spacetime? Is this rotation axis an ordinary space direction? Think there is no reasonable answer for this point. In Section 4, think Eq.(34) should be consistent with the Virial Theorem!</p> <p>The manuscript is OK. Think it interests the authors to improve Section 3.6 and Section 4, according to my suggestions.</p>	$\frac{c^2 R_0}{G} \cong \sqrt{\frac{2}{\left(\Omega_M\right)_0}} \left(\frac{c^3}{G H_0}\right)$ <p>and by imagining the numerical equality of current angular velocity and current Hubble parameter, it is possible to show that, magnitude of current cosmic rotational kinetic energy (about the point of big bang) is equal to the magnitude of current dark energy. It may be an accidental coincidence also. Just we are trying to show one theoretical possibility. Interested readers, may see subsection-3.8.</p>
Minor REVISION comments		
Optional/General comments		