



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	Physical Science International Journal
Manuscript Number:	Ms_PSIJ_40648
Title of the Manuscript:	An Experimental Study to Examine the Curved Spacetime Using Magnetic Fields
Type of Article:	Original Research Article

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
<p>The article describes measurements of the variation of magnetic flux through the sensor when the permanent magnet rotates in the horizontal plane (A) and in the vertical plane (B). It is found that in the case of B, the flux variation is an order of magnitude larger than in the case of A. In total, four experiments were performed (which is clearly insufficient for the collection of statistics) and averaging over them was made. In the opinion of the author, this allowed to eliminate the influence of random factors. The results made it possible to detect the presence of some external factor of the deflecting lines of force of the magnetic field towards the center of the Earth. The author attributed this effect to the curvature of space-time by the gravitational field of the Earth according to Einstein's theory. If the author is right, he was able to detect an effect which sensitivity exceeds the effect of the deviation of light rays in the gravitational field by 5 (!) orders despite that both effects are described by the same equations. This is hard to believe, especially since the author does not give important details of the experiment:</p> <p>a) How did the influence of the Earth's magnetic field was eliminated? b) How was the measurement error estimated? c) There is no comparison with the results of NASA experiments using gyroscopes. I mean the comparison of precision, not expenses. I believe that the result of the experiment is due to the influence of some unknown field, for example, the Earth's magnetic field. By the way, the sensitivity of the experiment is such that it is difficult to detect even the influence of the Earth's magnetic field (the magnitude of the Earth's magnetic field / the magnitude of the magnetic field of the magnet = 10^{-5}—10^{-4}) The additions in the initial text of the article aren't essential and continue the declarative style of the article both present and previous.</p>	<p>I answer (a), (b), (c) questions that the reviewers asked in the order of (a), (b), and (c).</p> <p>a) To remove the Earth's magnetic field is simply done. First, I measured the magnetic flux density on the rotating table by attaching only a sensor without attaching a permanent magnet. From the first step, I am basically measuring Earth's magnetic field. Second, I measured magnetic flux density on the rotating table by attaching permanent magnet. By the second step, I am measuring the sum of the Earth's magnetic field and permanent magnetic field. Third, I obtained the net magnetic flux density of the permanent magnet by subtracting the first values from the second values. Therefore, the net magnetic flux density excludes Earth's magnetic field.</p> <p>b) The greatest error is the fluctuation in the earth's magnetic field. The Earth's magnetic field is actually changing a lot every day and every second. Solar winds seem to be the main cause. The variation in the time of 5 second shown by the magnetic sensor was measured to be $\pm 1.2 \mu T$. Yet, I believe these errors are negligible, because the observed changes in magnetic field in my experiments are about $10 - 17 \mu T$. (Added in the discussions)</p> <p>c) The verifications of the results in this study will be made by comparisons with the theoretically obtained by Einstein field equation in the future. (see the conclusions) It is practically very difficult to make direct comparison between the results from this paper with the results from the NASA. First, what NASA measured and what I measured to estimate the curvature is different. NASA measured the inclination of the curvature while I measured the deflections by the curvature of spacetime. Direct comparing inclination angle with deflections of magnetic field line is of no use as they have different dimensions. Furthermore, the predicted geodetic gyro-spin-axis precession by NASA is a tiny angle of 0.0018 degrees. (ref, https://www.nasa.gov/mission_pages/gpb/). In this study, unfortunately, vectors of the deflected magnetic field line are not considered. Thus, it is difficult to compare my results with the NASA experiments directly. This study is experimental approach in examining the effect of gravity on magnetic field. Based on this research, I hope that many scientists will verify the effect of curvature of spacetime on magnetic fields in the future. (See the discussions, "future studies could examine the vectors of deflections in the magnetic field lines in order to verify the geodetic effect") I added "However, comparing the experimental results from this study with theoretically obtained values of the curvature of</p>



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	<p>spacetime remains for future studies” in the abstract to make my points clearer.</p> <p>Thanks for your comments.</p>
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