

REVIEWS ON THE MANUSCRIPT [25]

Reviewer 3:

One of the goals of the book is to teach students to write scientific articles.

From this point of view the manuscript is not well prepared. Its structure and physical content should be revised before the publication. Main points are listed below.

1. The manuscript should be better structured.

Abstract - what is the problem, how it was solved, and main results obtained.

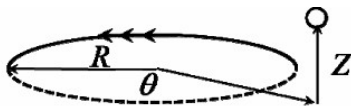
Introduction – more detailed insight into problem (e.g. force between two circular currents and the stability), solutions found in the literature.

Model used (magnetic force model using circular currents, finding of currents and diameters of currents).

Results and discussion – what can be deduced from the model, supporting experiments (e.g. ω_{max}).

Conclusions: summary of main facts resulting from the discussion. In conclusions cannot be listed points not resulting from discussion (e.g. spinner should have optimal moment of inertia and optimal ratio between mass and “current” in the magnet).

2. Manuscript preparation – some expressions are not displayed correctly on my computer so it is difficult to understand the text.



Field of ring(R, i) By

$$\frac{\mu_0 i R^2 \cos \theta}{4 (R^2 + Z^2 + Y^2)^{3/2}}$$

Field of ring(R, i) Bz

$$\frac{\mu_0 i R^2 \cos \theta}{4 (R^2 + Z^2 + Y^2)^{3/2}}$$

We'll come back to model later. Now let consider different system of magnets.

Some of the symbols (e.g. orientation of Y-axis) are not explained.

Symbols $\omega_{||}$, ω_{\perp} , $I_{||}$ and I_{\perp} are used in text for parallel and perpendicular components – please change to the symbols used in relations and pictures.

Literature is not referred in the manuscript – it is not clear if some of the relations/conclusions come from the literature or not.

Relations and figures should be numbered – without the numbering they cannot be referred.

3. Physical content. How were radii of currents (1.4 cm, 4.5 cm) obtained? These values probably were not fitted – or yes? The force between two currents (between the bottom and the spinner) depends on the products of the currents $I_1 I_2$ and $I_1 I_3$.

Cannot be the value of one current fixed? In which way were the values of the currents found? The values I_2 and I_3 are very different – what is the physical interpretation?

In the manuscript is discussed why the inertia of the spinner narrows the vertical zone of the stability.

The zone (2.0-2.5 cm) shown in the lower picture (page 3) was obtained from the model or was found experimentally? The inertia of the spinner influences also its horizontal motion – the horizontal zone of stability should be arrowed in the same way that the vertical zone, or not?

In the manuscript the horizontal and the vertical stability are discussed separately. This is adequate only for small deviations from the point of stability – should be mentioned in the manuscript.