

## REVIEWS ON THE MANUSCRIPT [27]

### Reviewer 1:

I hereby recommend the manuscript # [27] for publication. There are some minor drawbacks, but they can be corrected quickly.

Author has provided a clear explanation of the investigated phenomenon, as well as numeric calculations and experiments.

I consider that the manuscript is sufficiently complete and there are no important topics that require further analysis beyond the presented manuscript.

There are some technical remarks considering the formal side: firstly, the scale of graphs (at least, Fig. 1 and Fig. 5) should be changed. Now it's difficult to read the captions under the axes even on a laptop screen; one should notice that hard-copy printing always decreases the image quality further.

The same concerns the photos which may become unclear for the reader, especially Figs. 7, 8, 10. Cf. <http://www.savvyminds.org/alg2images/parabola.jpg> as a graph that would remain clear independent of the printer quality.

Maybe a schematic image, placed near a real photo, would clarify the shape of the surface.

Experimental graph: why theoretical curve overestimates the "h" value? That seems to be regular.

As I understand, there is only one diameter of the ring? I guess that the author will not now design another one of different size, but in any case it's worth to be mentioned and explained.

In my personal opinion, the discharge effect could have been described in more detail. Again, the poor quality of photos (9, 10) may hinder the reader to understand the mechanism of the discharge. By the way, it is interesting whether the soap film was destroyed with discharge, or not.

Besides all critical remarks, it's a good work! Good luck to the author in his further works.

### Reviewer 2:

The structure of the paper is quite OK. Authors explained the phenomenon of the film existence and deformation qualitatively and numerically. They provided a lot of different experiments with quite interesting results.

Experiments for different situations provided : perfect. Conclusions drawn are quite good.

Remarks and suggestions to the manuscript:

1. "Soap molecules ... form the surface of the film" : they form the volume too; consider a more accurate wording on how surfactants stabilize the surface

2. No explanation of the film stability
3. **Dependence  $h(d)$  was obtained and measured but linearization was not provided. So we can't make any conclusions about the correctness of the theory**
4. **" $h \ll a$ ;  $h = a = R$ " : conditions are inconsistent**
5. "n/m" : "N/m" is more common
6. **Assumptions of the theory are not clear – it should be described clearer**
7. No numerical estimations in the theory
8. No numerical descriptions for the majority of the experiments

### **Editorial request**

**Figure 1:** Is the image of own work? If not, please reference rigorously and provide the source for the image.

**Figures 3, 6, 9, 10 :** consider adding a scale bar.

**Parameters :** consider typing all physical parameters in italics, not in bold italics.

**Consistency of units and spelling:** please check whether short notations (e.g. C or V) or full notations (e.g. Coulombs or Volts) are used throughout the text. Note that the short notations are clearly preferred.