

//13. SHINING ORBS

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The problem

- Bright and rather unexpected white disks may appear in a photo taken with a flash in a dark room. Explain why such shining orbs appear in the photos.

Clarifying questions

- What are the most important parameters that affect the size of the orbs?
- What kind of particle (geometrical shape?) did you take pictures of to get the orbs?
- How do the shape and size of orb depend on the shape of the particle?
- How many parameters did you test and why did you use those parameters?
- How would you measure the orb size if you had an asymmetrical lense?

The solution

- The reporter presented a solution and his work plan nicely, but presented no formulas used in the results to back the theory up. They have shown us little parameters in the explanation of the orb, and had little change of said parameters in their experiment. The theory of the symmetrical lens can not be applied to an asymmetrical lens, and the reporter does not show us which was used.

Points for discussion

Does light positioning affect the orbs?

What kind of lens did you use?

What ways are there to measure the size of the orb?

Why did you choose your exact way?

How would using an asymmetrical lens change the result?

Are you sure the camera you used had an ideal symmetrical lens?

What would happen if you took the pictures in some liquid (example – water)

Conclusion

- The reporter had a nice presentation, the theory was lacking and no hypothesis was explicitly shown. There was a noticeable lack of literature and many more parameters could have and should have been measured.
- The amount of experiments was rather small, and many of the parameters were left unnamed, otherwise a great presentation.