



Opposition: 6. Ship wakes

Aleksandra Petkova, Team Bulgaria 1



6. Ship wakes

The wave pattern produced by a ship moving on the water is visually similar to a Mach cone and depends on various parameters. Investigate the effect.

Task partially/fully/poorly fulfilled.

Theory



1. Water waves are dispersive
2. Some quantitative analysis
3. Reverted from Kelvin angle
4. Explored the shallow model case



1. Didn't include the capillary effect quantitatively
2. Didn't consider relation of the ship velocity to angle
3. Didn't differ it to the Mach cone model
4. No accurate explanation model for describing why the results varied

Experiment



1. Speed controlled by Arduino
2. Tried different speeds



1. Bath tub may not be long enough
2. Normal camera can't catch the full effect
3. Didn't explore limitations of the model

Questions:

- What speed of the water waves did you use in your theoretical model?
- Water is a dispersive medium, water's dispersion relation; the speed of the wave depends on its wavelength
- Do you think that the ship length will have an impact on the pattern produced
- Do you think that the velocity of the ship will change the pattern
- Did you consider the capillary effects

Questions:

Thank you for your Attention

Thank you!

