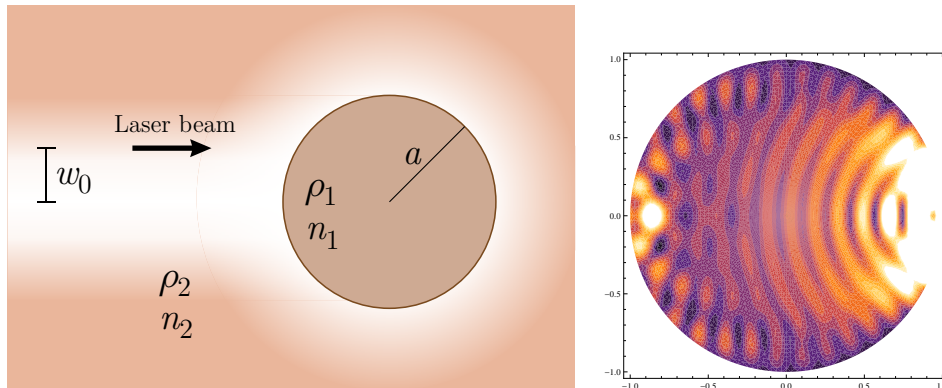


Exercise for project/Masters thesis

The exercise is within the field of optofluidics, the optical manipulation of liquids using lasers. We wish to investigate the deformation of a fluid droplet trapped in a static laser beam due to the radiation pressure exerted on it.

When a liquid droplet is illuminated by a laser field, it acts as a lens, focussing the light onto its rear surface. Due to the higher light intensity at the focal point, the droplet takes an egg-like shape. The current theoretical description is valid only to linear order[1, 2, 3], and we wish to extend this using a numerical multiphysics tool. The software COMSOL is well suited for this purpose.

A group at the Central Laser Facility in the UK is planning an experiment using this system, and the exercise will be directly associated with this experiment.



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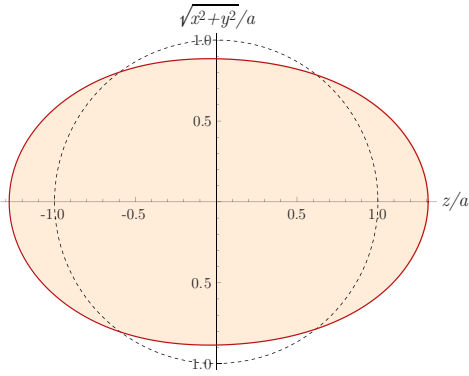
<http://folk.ntnu.no/simenand>

References

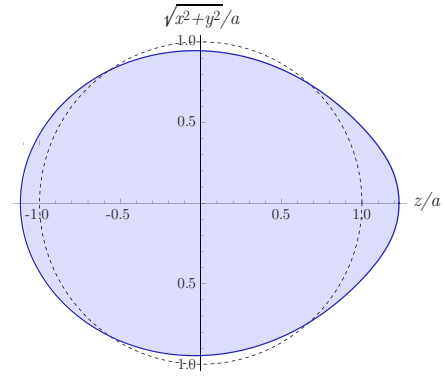
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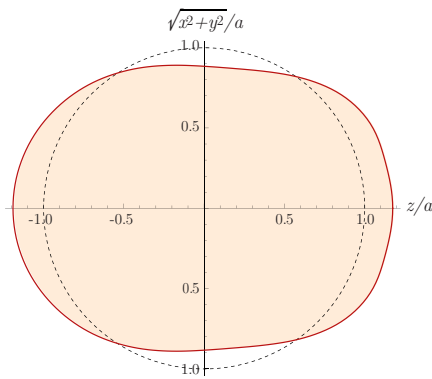
(a) Oil emulsion, narrow beam



(b) Water in air, narrow beam



(c) Oil emulsion, wide beam



(d) Water in air, wide beam

