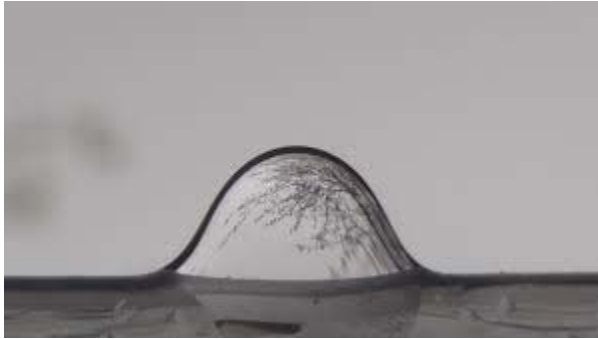


Axisymmetric Drop Shape Analysis

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Surface tension is a property of fluids that makes them take a shape that minimizes their surface area. Making devices measuring surface tension is a huge industry. For this purpose a drop of a given fluid is subjected to rotation or to gravitational forces. Then, a photo of the drop is taken. The latter is digitalized and, thus, a set of points that describes the experimental profile of the drop is obtained. On the other hand, taking into account the forces that act on the drop, its

shape could be computed if the surface tension is known. Software that is used to control the measuring devices finds the value of the surface tension for which the theoretical and experimental profiles coincide.

1. Students will get acquainted with the mathematical modeling of the shape of a drop that is subjected to rotation or gravitational forces.
2. Given experimental data (a drop's image) they will have to find the drop's surface tension. This will be done in two steps:
 - Image processing—given an image, obtain a set of points, corresponding to the drop profile.
 - Obtaining the surface tension for which the theoretical and the experimental profiles coincide.

