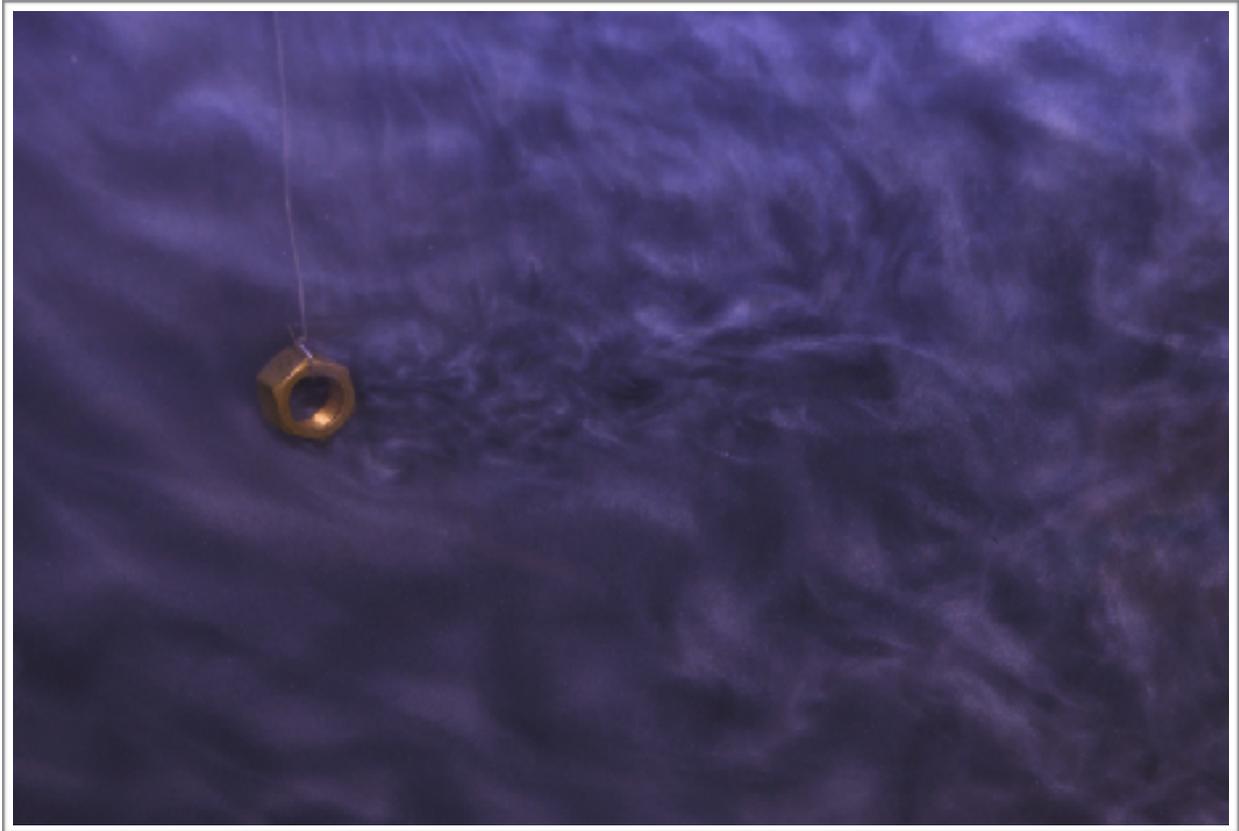


Team Third Report

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Flow Visualization

Fall 2018

Introduction

This image was used for the third project. The purpose of this image was to show the laminar and turbulent flow in front of and behind an object. This experiment was done in the basement of the ITLL. To do this experience our group filled up a 55 gallon water tank and set up a tubing system in it. We used a recirculating water pump, which was able to pump about 3 liters per a minute. The tank had part of the set up already in it. There was a plastic divider that was used as a background for the photo. Between the divider and the glass there were laminar manifolds which helped the flow and kept it divided. On each side of the tank there were PVC pipes with holes that allowed the water to flow out and recirculate. We used a large fluorescent light to help light the flow. The issue with the light and the room was that we kept having glare, which made it very hard to take the photo. To highlight the flow rheoscopic fluid was poured into the tank and circulated through it. Then, a small object (a nut) was placed in the space between the tank and the divider. This created a turbulent wake.



Image Capture

This image was taken with a Nikon D3300 DSLR camera with an 18-55 mm 1:2.5 - 5.6 lens. The exposure was 1/15 second, the f-number was f/5.6 and the ISO was set at 400. The camera was approximately 6 inches from the glass tank and was angled down slightly. The angle helped prevent the glare on the glass.