

Peter Davis  
Group Assignment 2  
Flow Visualization



This picture was taken for the second group project. Our goal was to demonstrate some of the interesting phenomena that liquid nitrogen exhibits. Liquid nitrogen rapidly boils at room temperature, making it behave very differently than most liquids. We tried a large variety of pictures looking for visually interesting effects. We tried for a while to get images and videos of the leidenfrost effect, but weren't able to because the drops of liquid nitrogen were too difficult to see. We also took pictures of soap bubbles and the fog generated.

For this picture we made bubbles filled with the evaporated nitrogen. To create the bubbles we put liquid nitrogen into a beaker. One end of a tube was put in the beaker, and the top of the beaker was covered so gas could only escape out the other end of the tube, which was covered in soap. This formed bubbles that were between 15 mm and 30 mm in diameter. The cold nitrogen was denser than the warmer surrounding air, and so the bubbles sank and rested on the black surface. The bubbles form spheres because the surface tension of the soap minimizes the surface area.

The picture was taken with a digital Canon SLR. The room had an overhead fluorescent light, and an incandescent lamp that was shining on the bubbles. The camera was approximately two feet from the bubbles. Very little Photoshop manipulation was done. I made the image black and white, and increased the contrast and brightness a little.

I like this image because of the zen-like simplicity of it. The bubbles are nearly perfect spheres. The fog filled grey bubbles contrast nicely on the black background. Very rarely do we see shapes as perfect as bubbles, which I really like.