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Flow Visualization

Group Project 2 Report

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For our second group assignment, my group decided to try and photograph the crown effect. A famous example of the same type of photography is with the milk drop. Upon impact, a water droplet explodes upward creating a crown.

The flow apparatus consisted of a syringe and a stand. High lighter dyed water was then dropped onto a vase, or any flat surface and was then photographed using a black light as the only source of light.

The water was colored using high lighter dye, the best colors ended up being green, yellow, and orange. This water was then dropped through a syringe about 6 inches from the vase we were aiming for. Underneath the vase we had a black light illuminating the droplets. I prefocused my camera at about the same level as the surface of the vase and snapped away.

My photographic technique was a series of trial and error, and a lot of patience. Its difficult to achieve these images on a first try. Timing plays a huge role, as well as lighting (I know this for next time) The size of the field of view is about half an inch. The distance from the object to the lens is roughly 2 feet. I was using a 105mm Macro lens f/2.8. I'm using a Nikon D300, digital. The final image size is 4288x2848 pixels. I shot my image at 1/160 sec at f/3.5 with my ISO bumped up to 1600. The only real adjustments I did were just for color. I tried to replicate the bright fluorescent green that was produced from the black light. I also tried to reduce some of the noise produced from shooting at such a high ISO.

This image shows the crown effect extending out of the droplet. I like how you can see the lip of the inside. The reflection also adds a nice effect. I don't like how noisy the image is. Next time I do this I'll have to use something other than just a black light so I can increase my shutter speed and decrease my ISO. This would also allow me to shoot with a smaller aperture giving more detail to the rest of the crown. I'd like to shoot it in a brightly lit room using appropriate dyes in order to see more detail of each crown photo.

