11 Facilities

Monday, March 05, 2012
11:13 PM

SIT WITH YOUR TEAM FROM NOW ON

TEam First due in 1 week.

Also: Reuben's tube

home checkout.	Settles' book	systems	(turbulent jet). You may need time to make your own color stops. Can be used in water too.	

LIQUIDS

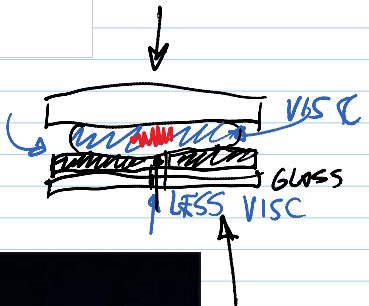
Facility	Lighting	Visualization	Phenomena	Access
ITLL Flume	Strobe or 500 Watt work lights or North Star lights New LED floodlights	Free surface or food coloring. Be sure to bleach water clean. Try poster paint dots for surface flows.	Free surface: weirs, hydraulic jump, inclined flow. Wakes: submerged objects, one can inject dye. Jets: coflow, reverse, transverse. Boundary layers and surface flows.	Sign up for flume time in ITLL. See Nick.Stites@Colorado.edu ITLL module engineer. North Star lights in Durning Lab Greg.Potts@
Large Fish Tank in ITLL (50 gal)	Strobe	Food coloring. Be sure to bleach water clean afterwards	Short jets, vortex rings, boundary layers	Check with JH first. ITLL signup/ checkout
Hele-Shaw cell	Work light or bounced strobe	Food coloring of detergent, corn syrup, water, etc	Saffman-Taylor instability	ITLL checkout Needs glass top sheet
Reversible Flow Demo	Any lights will work; everything is slow	Food coloring	Glycerin or corn syrup. Students write in the fluid with dye and rotate the inner of two cylinders slowly. Upon reversing the direction, the original writing reappears.	ITLL checkout (take home 2 days). Two sets are available.

HERE 2012

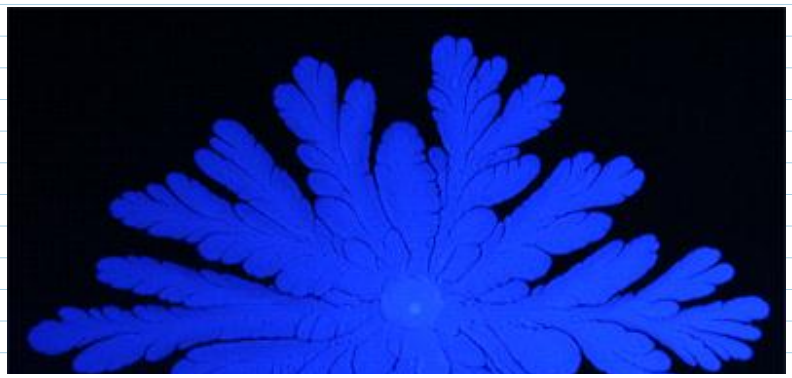
Melissa Talmage, Nigel Gorbold, Lok Kin lee, Christopher McCray, Taylor Simonson FV2006

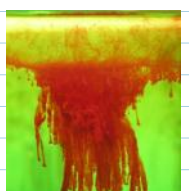
Also: Desk Toys, wake trays

Hele-Shaw cell

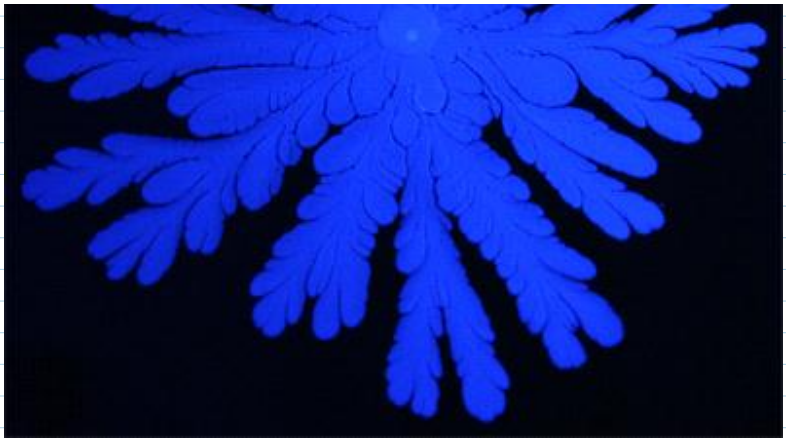


SAFFMAN-TAYLOR





Bethany Rotherham FV2003



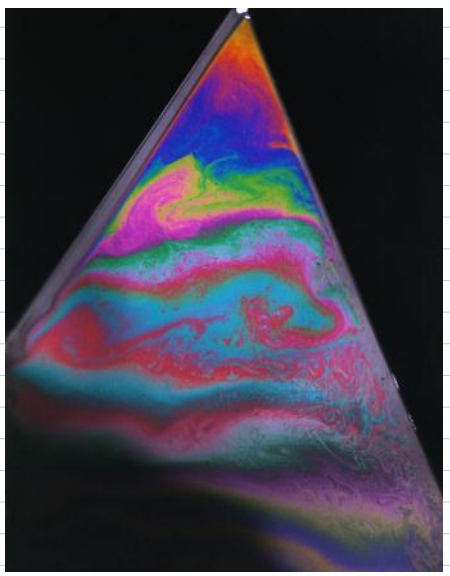
FV2003

Rubbing alcohol dyed with fluorescent laundry detergent was injected into a thin layer of pancake syrup in a Hele Shaw cell, resulting in fingering from the Saffman-Taylor instability.

Tanner Ladtkow, Andrea Fabri, Tim Read
FV 2006

http://www.youtube.com/watch?v=p08_KlTKP50 Reversible flow demo

Katina Butler, Kerstin Lieff, Adrien Robert, Chris Wilke FV 2004



Small (10 gal) Fish Tanks	Strobe	Food coloring, alumina powder, cornstarch particles; anything you are willing to put down your own drain.	Short jets, vortex rings, boundary layers Steady vertical vortex (from stirring machine) Small ring generators available.	ITLL checkout (take home 2 days)
Soap Film Tunnel; high humidity needed.	Diffuse sunlight is best.	Thin film effect	Jets, wakes, shear layers	ITLL signup/ checkout. Normally in MediaShack
Fish Tank ECSL 121 (voltage source limitation)	Strobe or work lights	Hydrogen Bubble apparatus	Any motion in salted water	JH. Extra training and work required
Blackstock Rheoscopic Fluid cell	Needs polarized light setup	Streaming birefringence	Cylinder wake	Prof. Hertzberg
Ferrofluid	Normal studio lighting	Move it with magnets	Magnetic field lines	Impossible to clean up spills. Will stain anything. Nontoxic, though.
Glycerin				Mix with soap solutions to extend soap film life

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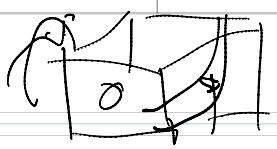
				though.
Glycerin				Mix with soap solutions to extend soap film life

Equipment Checkout
Please note that this equipment is often either expensive, rare, or both. Students checking out equipment are expected to take responsibility for the equipment. If equipment is lost, stolen, or broken, there are no funds available for replacement or repair (no, CU has no insurance for this stuff, it would cost too much). Durning Lab is in the basement level of the ME wing, ECME 1B66, run by Greg Potts: 2-7646, greg.potts@colorado.edu.

Equipment	Location	Notes
Stage fog generator (large)	JH	Fog is nontoxic water-based glycol solution. $40/gal., don't waste. Can leave residue.
Stage fog generator, (small)	ITLL MediaShack or JH	
Zero Blaster ring generator and fog fluid	JH	
4.5" schlieren system (2) Big schlieren (20" diameter, 8' focal length, need 24' dark space)	JH	
	CAMERAS and LENSES	
Olympus I-Speed high speed video system	ME Durning Lab. See Greg Potts.	Training required. Up to 30,000 fps, but is low resolution, and low sensitivity; needs lots of light.
Flip HD video camera F460	JH	Fixed focus, use closeup lenses
Nikon D700 DSLR with 24-105mm zoom	See Prof. Hertzberg	Tight leash.
Nikon extension tubes	See Prof. Hertzberg	
Nikon 24 mm wide angle lens	See Prof. Hertzberg	
Nikon 50 mm lens	See Prof. Hertzberg	
Nikon macro lens 102 mm	See Prof. Hertzberg	
Closeup Lenses: +1, 2 4 in 58 mm dia, +2,+3 in 72 mm dia.	JH	
Stereo cameras (film)	See Prof. Hertzberg	
	LIGHTING	
Sunpak Auto 383 Flash (strobe) unit & 25' pc cable	See Prof. Hertzberg	
CW 5 Watt argon ion laser	See Prof Hertzberg	Serious training and a bit of repair required.
Misc black lights	ITLL checkout, MediaShack	
Party strobe	Mediashack	
500 W work lights, several sets	ITLL	
	MISC	
Gretag-Macbeth/X-Rite Eye-1 Spectrophotometer	See Prof. Hertzberg	For color calibration of monitors, cameras, printers and projectors.
Large backdrop (8 foot square), Small table-top	Durning lab	
tent, black velvet		
Assorted tripods	JH	



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NORTHERN

tent, black velvet		
Assorted tripods	JH	

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