

DEEP

*Discover, Explore and Enjoy
Physics and Engineering*

Mandatory Dates!

Fall DEEP Showcase

December 7, 2017

Physics Festival

April 7, 2018

Spring DEEP Showcase

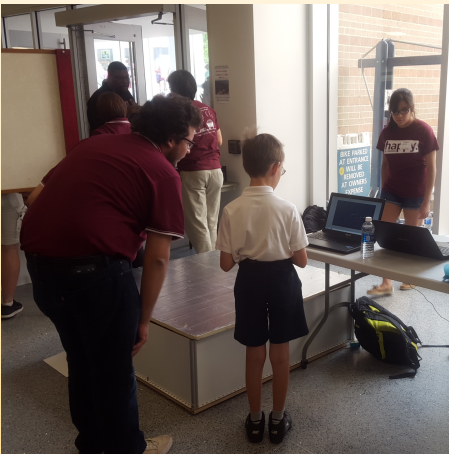
May 2, 2018

DEEP 2017

Ben Schroeder, bschroe@physics.tamu.edu

LIDAR

Navigate a RC car through a maze blind using a scanning laser to map the car's surroundings



Schlieren Imaging

Visualize changes in air density caused by shockwaves, heat, etc...

Works well, but we are looking to take it to the next level this year!

Build-A-Radio

Build and play with the components of a radio to see how they work

Needs plenty of work but has plenty of promise!

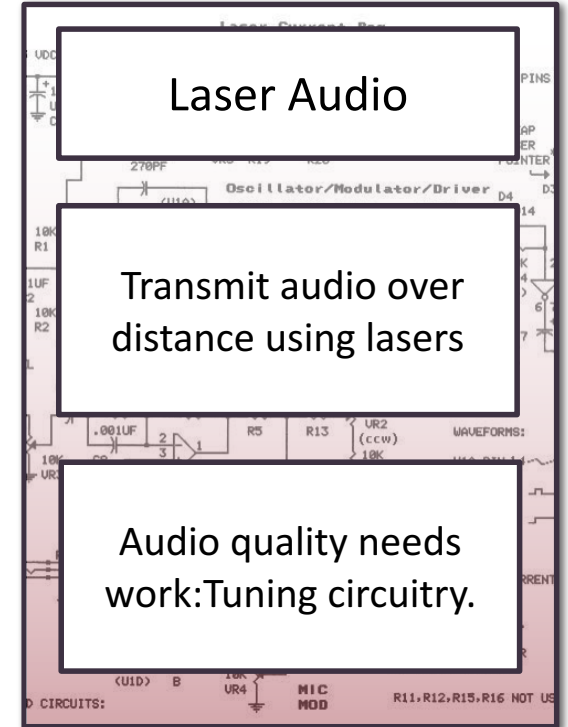
Need to build antenna, improve some circuitry, and so on.

Laser Audio

Transmit audio over distance using lasers

Audio quality needs work: Tuning circuitry.

Potential new demo...



Optics and General Physics

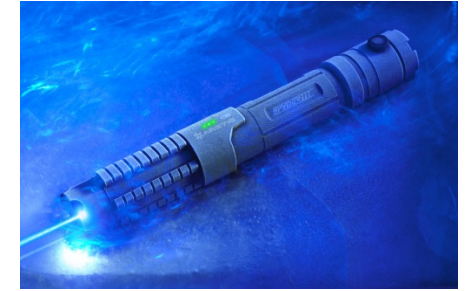
Dawson Nodurft and Sean O'Conner

Goal

- To complete past projects and create new ones if time permits.

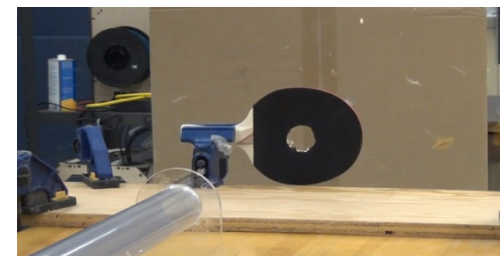
Past Projects

- Brazilian Nut Effect
- Fire Tornado
- Make a Quake
- Methane Bubbles
- Phonebook Friction
- Supersonic Ping Pong Ball Cannon
- Second Harmonic Generation



Interests

- Primarily optics, but willing to work towards whatever project my group prefers.

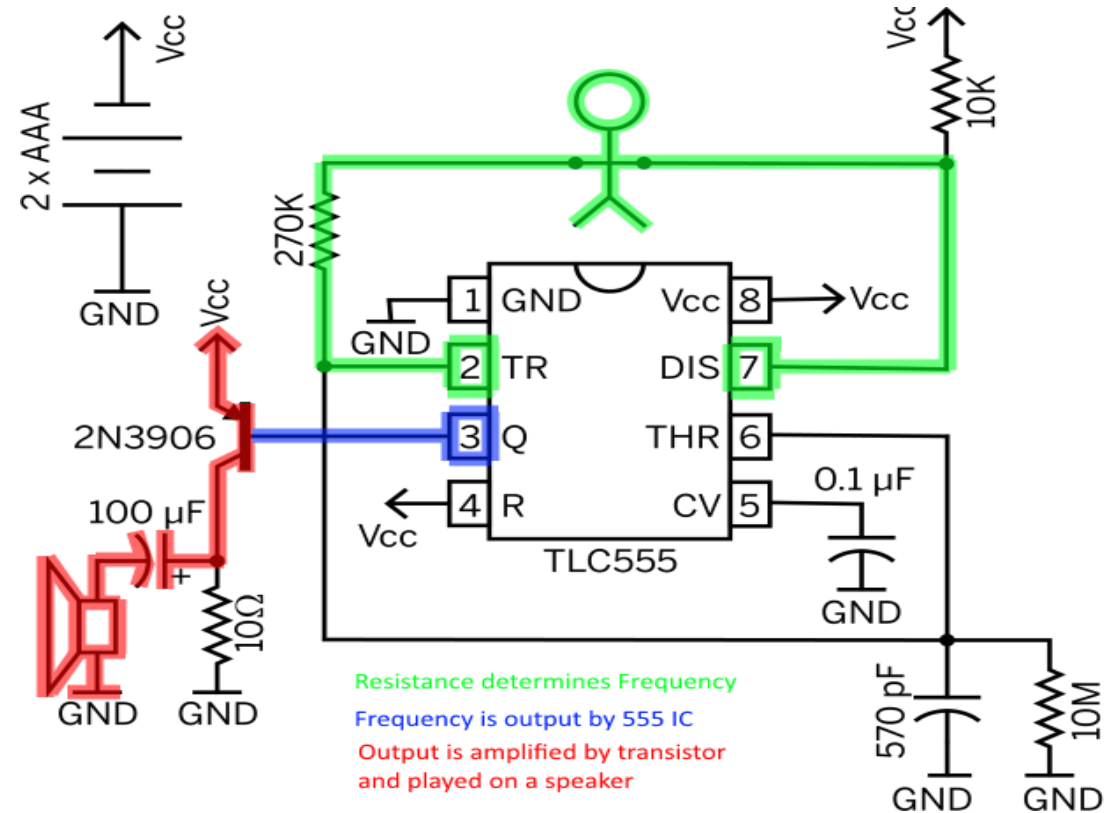
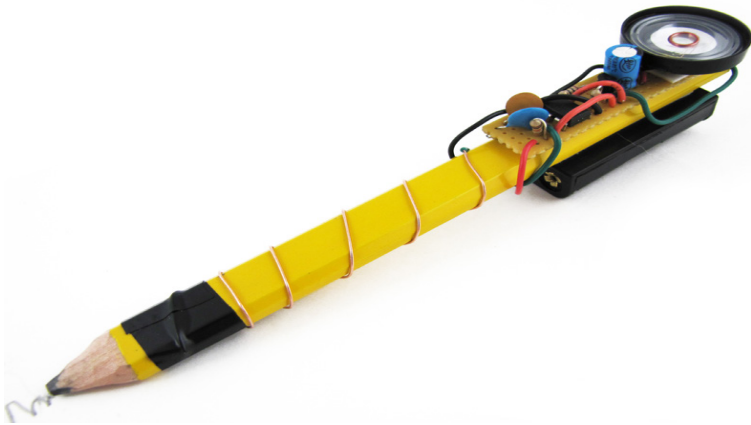


darsin06@gmail.com

Drawdio Musical Pencils

Emily Conant, emily.conant@physics.tamu.edu

- Electronic sound synthesizer built on a pencil.
- Plays musical tone with frequency that varies based on resistance between two points.
- Circuits need to be fixed on some pencils.



SUPERCONDUCTING TRAIN!!

Emily Conant, emily.conant@physics.tamu.edu



- Liquid Nitrogen is used to cool YBCO into a superconducting state.
- The train is placed on a magnetic track and when it becomes superconducting, the Meissner effect allows for the train to levitate.
- The demo is currently working, but we can improve it by rebuilding something that actually looks like a train (instead of a floating box).

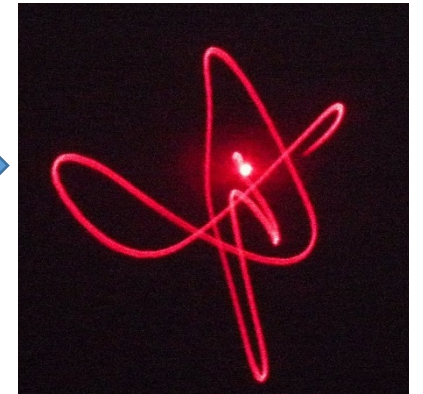
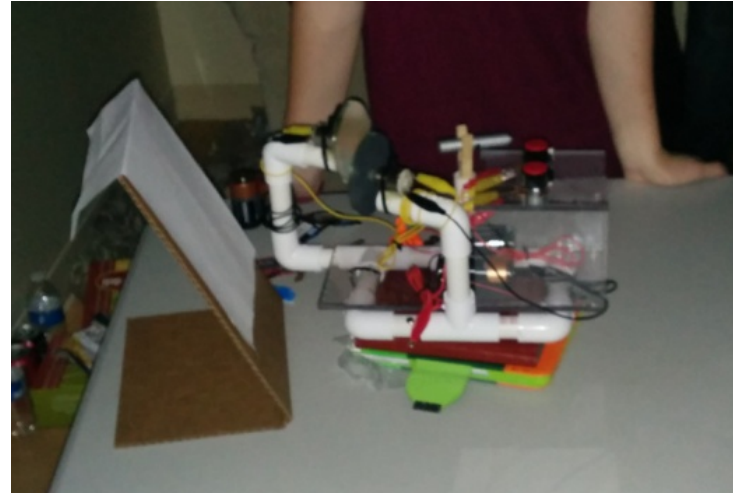
Joe Becker's Demo Ideas

jbecker@physics.tamu.edu

Elliptical Pool Table



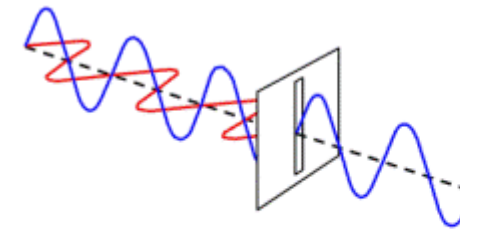
Dancing Laser



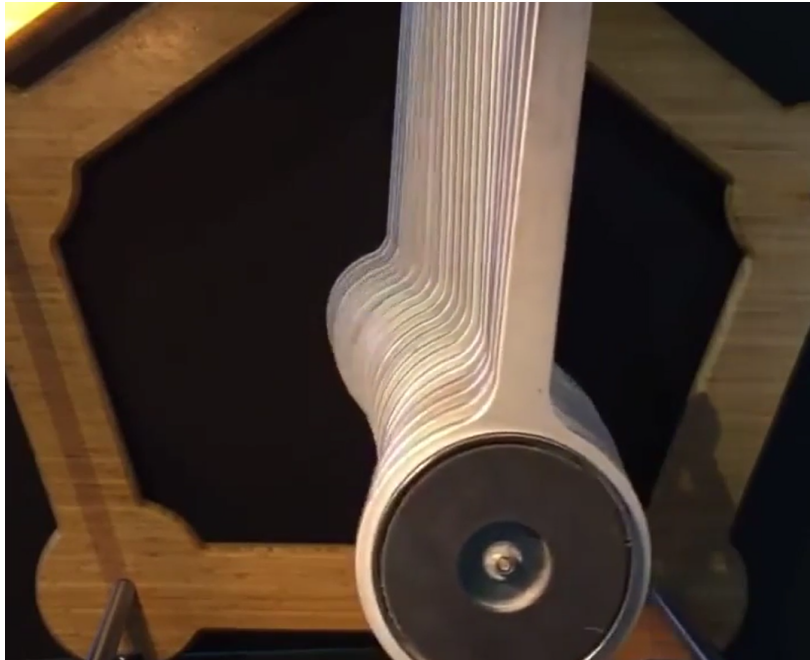
Rijke Tubes



Polarization



Jonathan Perry- JPerry@physics.tamu.edu

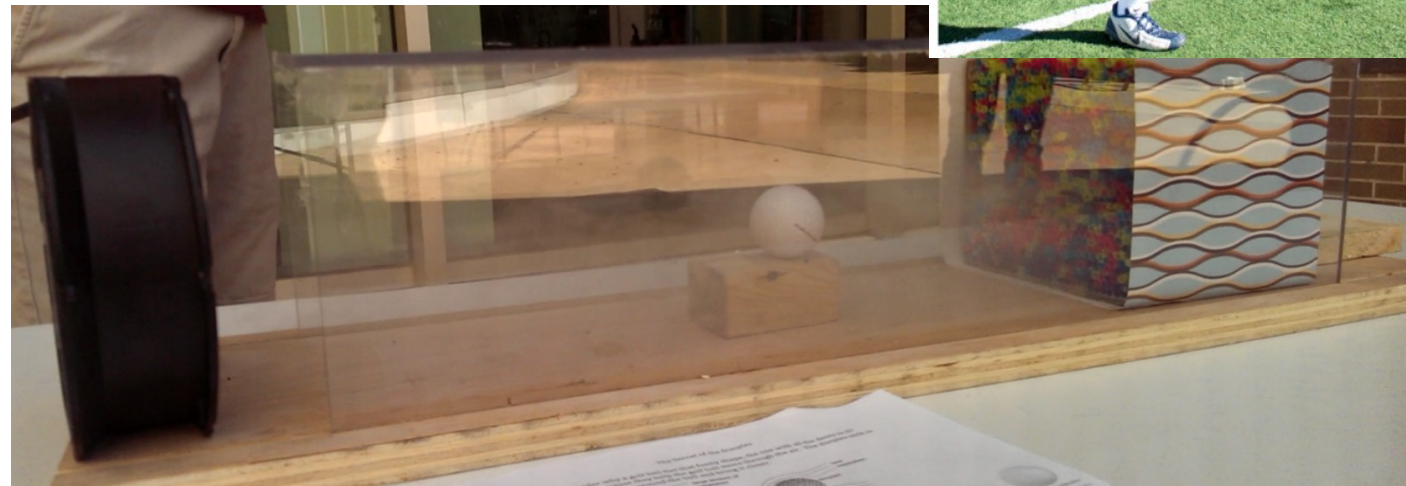
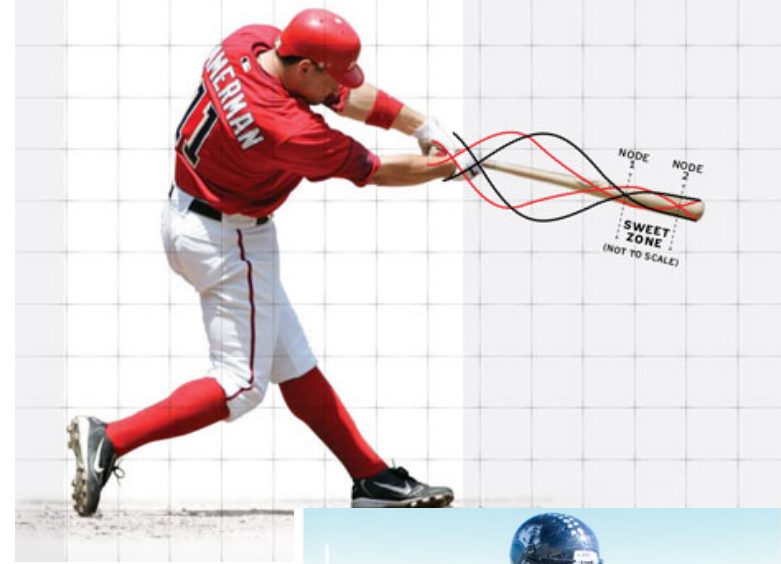


Magnetic Momentum Pendulum

Other demos include: Railgun; plasma torch (needs improvement); leaping ball chain; space-time simulator

Sports Physics

- Wind tunnel
- Blocking pad with force gauge
- Ideas welcome!



DEEP Astronomy With Leo Alcorn and Peter Chi

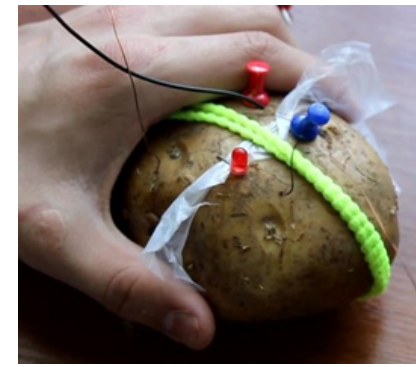
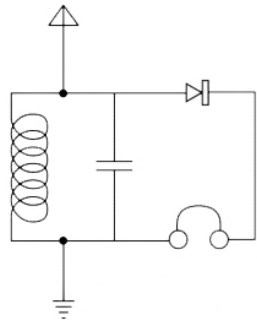
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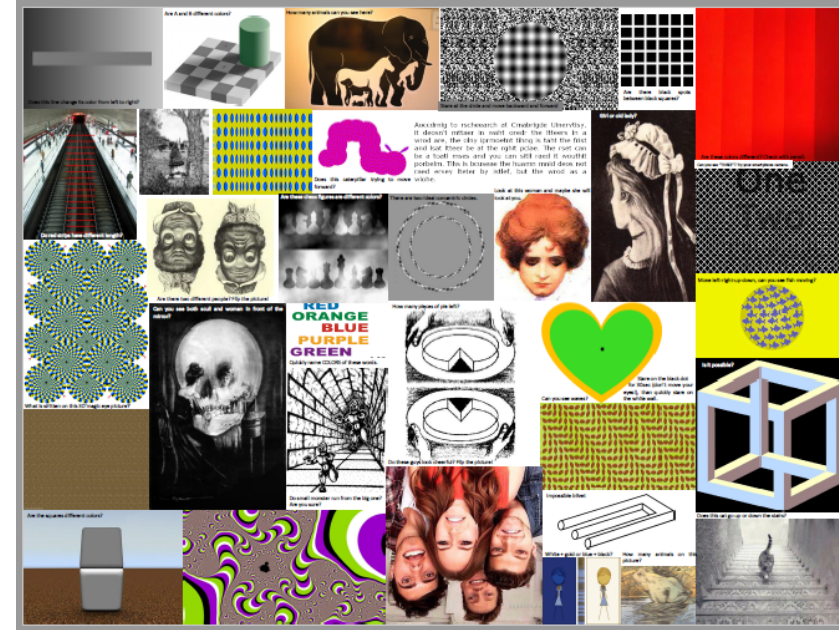
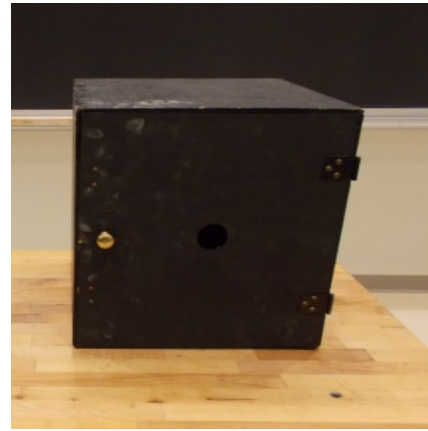
- Fresnel Lens
- Solar System Walk
- Human Sundial
- Why Don't Planets Twinkle?
- And many more...



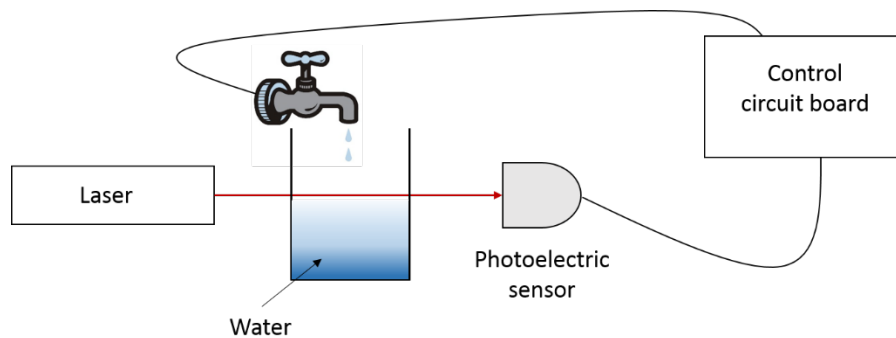
The Simplest Radio + Paper Speaker



Optical illusions Black box



Fluid level control with laser light



Stroboscopic effect



Mariia Shutova
mariia.shutova@physics.tamu.edu

Optics and Other Stuff

Sasha Zhdanova, sashaa@physics.tamu.edu

Future projects!!

- Cobra Wave
- Your ideas!!

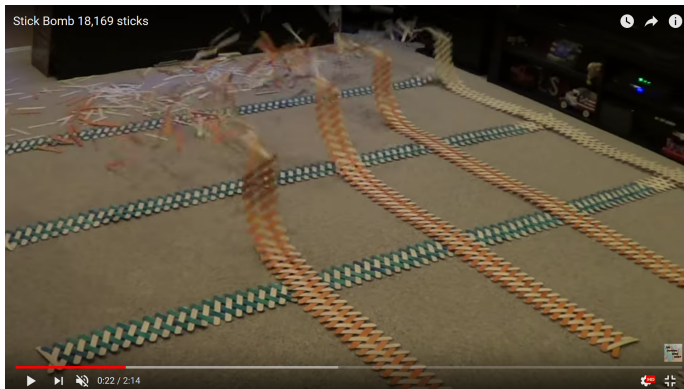
Projects that need work:

- Eye demo?

Past projects:

- Sonometer
- Laser Game
- Nitrogen Discharge Laser (revamp)

- Domain wall demo (adopted from J. Corbin)
- Piezoelectric Principle (broken)
- Piezoelectric Principle
- Cloud in a bottle (revamp)
- Laser light show



<https://www.youtube.com/watch?v=GtnZc1dujgg>

William Baker 817 527 1347 -or- williampatrickbaker@gmail.com

Cornstarch pool

Needs: Safety upgrades

Skills: Carpentry and design work (CAD, etc)



Glass Geyser

Needs: Safety upgrades

Skills: Design, construction,

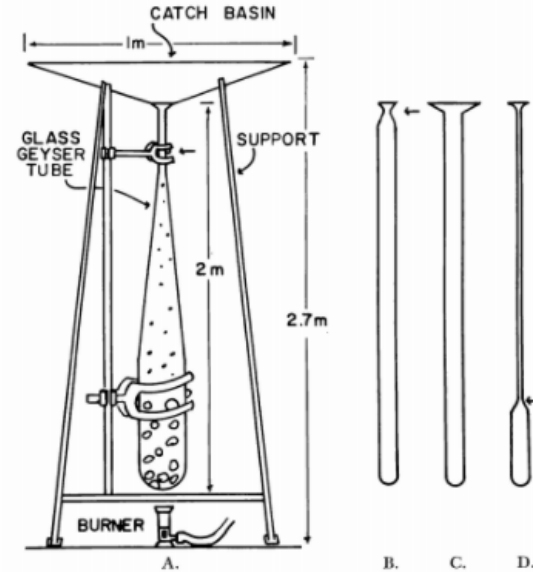
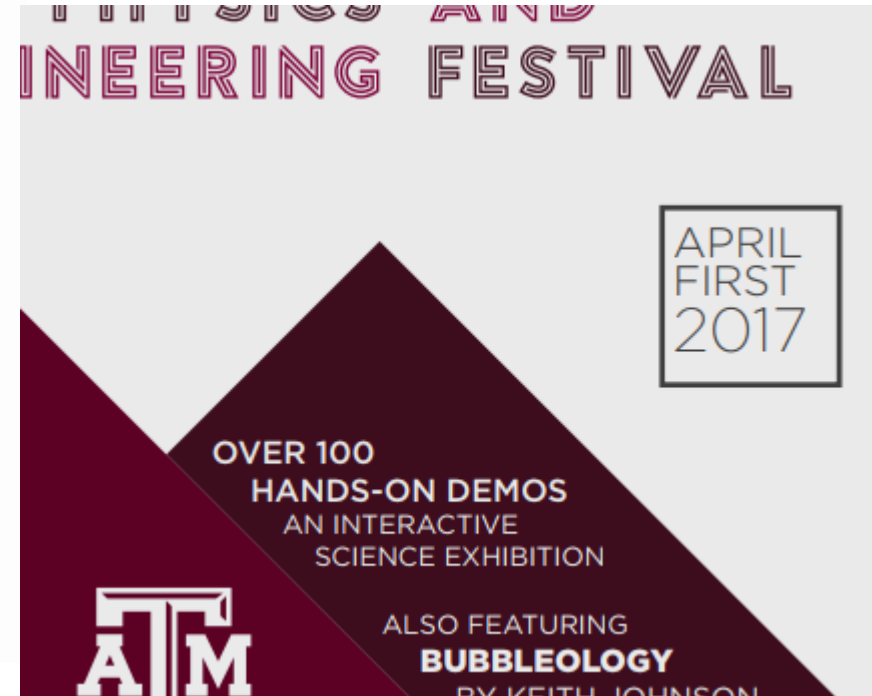


Fig. 1. A schematic diagram of four laboratory model geysers. Each of these has been observed both attached to the catch basin (comparable to fountain type geysers) and free standing (comparable to cone-type geysers).

General Demo Improvement

Needs: General aesthetics

Skills: PR, design, fashion, etc



Anything your heart desires

Needs: Approval, reasonable budget

Skills: Thinking, breathing, manipulating basic tools

Also, maybe something with a guitar?

Needs: Not sure yet

Skills: Music? **Ask Ryan**