SOAK 2016 WIZARD LABS ART PROJECT

#  Theme

The theme is "Wizard Labs: a mad science fair". It includes exhibits under a carport, and larger open air installations. A "mad scientist", suitably attired, is often on duty to explain the science.

#  Exhibits

## DNA model

This is a 6ft tall, 2ft diameter double helix with colored internal illumination. It hangs from the carport roof. See <http://wavyhill.xsmail.com/DNA.jpg>

## Jacob's Ladder

No mad scientist's lab is complete without one of these. A 6" high voltage arc repeatedly travels up a pair of 3 foot V shaped rods. It sits on a pedestal under the carport in an acrylic safety enclosure. See <http://wavyhill.xsmail.com/jacob.mp4>

## Foucault Pendulum

This is the centerpiece of the entire collection, It was invented by a civil war era scientist. A swinging bob suspended from a 25ft tripod demonstrates the earth's rotation and latitude. A blue laser records its spiragraph-like path across a 4ft platform. A 6ft 3D star (stellated octahedron) tops the tripod. Frame, bob, and star are lavishly illuminated by programmable colored LED strips. This is, of course, an open air installation. See the construction drawings in

<http://wavyhill.xsmail.com/foucault.jpg>

## Newton's Cradle

This is a scaled-up version of a popular desktop toy that uses a row of colliding balls to demonstrate conservation of momentum. This one is 6x6x8ft and uses bowling balls that flash on collision. Visitors pull and release 1, 2, or 3, balls to watch them repeatedly swing and collide. This is an open air exhibit.

## Gravity wave detector

Einstein predicted the existence of gravity waves but this was not proven until the success of a detector last September in southern Washington. The waves came from colliding black holes over a billion light-years away towards galactic south. This exhibit is a scaled-down version of that laser interferometer, less complex, less sensitive, and much less expensive. Visitors can see seismic waves, nearby footsteps, and any very strong gravity waves, if they ever occur. The exhibit is based on the Michaelson laser interferometer, enclosed in clear acrylic on a pedestal under the carport.

## Ferro-fluid

Ferro-fluids are magnetic materials in a liquid form. In this exhibit, visitors can use magnets to make it do some amazing and entertaining things. It will be on a pedestal under the carport. There is a youtube video of this at:

<https://www.youtube.com/watch?v=5APHa7vscoI>

## Wall of laser spirographs

This highly interactive installation appeared at Soak 2013 in a slightly different form, and was very popular. Several lasers of different colors beam moving patterns onto a rear projection screen. Visitors can play with a set of control stations in front of the screen to change the patterns. This will also be under the carport. See lasers1.jpg, lasers2.jpg .

## Mental Interference Dome

Late in the 80's, in a search for an electronic hallucinogen, I invented goggles which induced colorful changing visual patterns (but nothing else). The effect exploits a phenomenon in neuroscience caused by 2D beat frequency interference patterns in the Reticular Activating System of the brain. This exhibit is a scaled up version of these goggles. Visitors can hang out in a 10ft inflated dome on rugs and pillows illuminated from outside at various frequencies and colors, generating the desired effect on the inside. The M.I.D is an open air installation, and will no doubt be especially popular with a certain subset of the community.

## Location and layout

Several of the exhibits are adversely effected by wind, so a less windy location is preferred. Ideally, all the exhibits should be together since some maintenance is required, and an "explainer" is desirable. Almost everything needs to be powered, ideally from a single generator. The entire art installation is primarily built and operated by Black Rock Boutiquers, so a location closer to the BRB camp would be ideal. We will squeeze it onto the same plot beside/in front of the Boutique if necessary. The minimum footprint required is roughly 32x22ft. See layout.jpg .

Exactly how we handle the placement and layout is negotiable. Some compromise is inevitable.

## Costs and Funding

The projected total cost for all exhibits is $2230. Bills of materials are available. However, over half of that will be reduced by materials and equipment provided by the artist. Some of the remainder we may be able to make up out of pocket. Did I mention that I suck at fund raising? Whatever assistance the Soak art committee can provide will be much appreciated. See the cost breakdown by exhibit on the following page .

| **EXHIBIT** | **COST** | **FROM ARTIST** | **FUNDING NEEDED** |
| --- | --- | --- | --- |
| DNA molecule | 0 | 0 | 0 |
| Wall of laser spirographs | 0 | 0 | 0 |
| Jacobs ladder | 260 | 185 | 75 |
| Foucault pendulum | 730 | 380 | 350 |
| Mental Interference Dome | 500 | 345 | 155 |
| Gravity wave detector | 285 | 218 | 67 |
| Newton's cradle | 270 | 10 | 260 |
| Ferro-fluid | 185 | 115 | 170 |
| **TOTALS** | **2230** | **1253** | **1077** |

<http://wavyhill.xsmail.com/project.docx>

<http://wavyhill.xsmail.com/jacob.mp4>

<http://wavyhill.xsmail.com/lasers1.jpg>

<http://wavyhill.xsmail.com/lasers2.jpg>

<http://wavyhill.xsmail.com/foucault.jpg>

<http://wavyhill.xsmail.com/DNA.jpg>