

**To:** Office of University Relations  
**From:** Society of Physics Students  
**Subject:** Splash'n'Sparks activity booth  
**Date:** June 30, 2019

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### **Booth Preview**

The Society of Physics Students will hold a carnival theme booth. First, we will present a couple of physics demonstrations, such as: I) Plasma Globe and II) Magnetic ring launcher.

#### **I Plasma Globe Demonstration:**

We will display a Plasma Globe at the table of the booth. This demonstration exemplifies the states of matter. Our audience can interact with the globe.

#### **II Magnetic ring launcher:**

This will be displayed on the table of our booth. This demonstration will help our explanation of how electromagnetic currents are able to launch an aluminum and copper ring, and turn on a light bulb without connecting to an outlet.



Figure 1: Plasma Globe and Magnetic Ring Launcher

These demonstrations will bring curiosity to kids and parents, engaging them with our booth. After explaining how they work, we will explain three physics-based games that we have designed for our audience: *The Standard Model*, *The Ionization Game*, and *The Probability Round*”.

### **Games and Demonstrations**

#### **1. The Standard Model:**

This will be displayed at the back of our booth. We will create a model of a spider web with cups hanging at different accommodations. The players will have four balls of different sizes and colors to be launched inside the cups. These four balls will represent the force carrier particles in the universe: W bosons , Z bosons, photons, and gluons. Six target cups represent the particles with which these “force carriers balls” can interact: electrons, neutrinos, muons, tau, up, and down quarks.

## 2. The Ionization Game:

This game will be displayed on the table of the booth. The user will be provided with a laser and a set of prisms mirrors to set up. They will need to arrange the mirrors accordingly to "ionize" an element provided as target that will represent an atom.

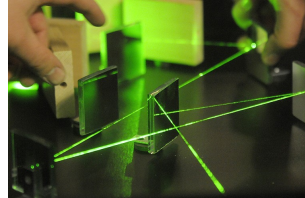


Figure 2: The Ionization Game

## 3. The Probability Round

Our team is still working on the design of this game. We will create a set up similar to a board game with obstacles motivated by physics concepts. e.g. some moves will not be allowed due to *selection rules*, there will be positions representing black-holes that trap you inside for two turns, among others.