



ABSORPTION EMISSION BADGE

Get Stoked! Fluorescence microscopy is a technique used to determine the wavelength at which a molecule absorbs and re-emits light. Fluorescent dyes are usually probed by this technique. This badge is represented by a spectrum showing absorption (left) with a glow in the dark emission (right).

Trapped in the gas cell, and nowhere to go. The gas molecules are bombarded by infrared (IR) beams to probe the molecule's vibrational frequency. Students use this equipment to investigate differences in the rotational-vibrational transitions of HCl and isotopic DCl. The badge is represented by a gas IR cell.

IR GAS CELL BADGE



**CHEMISTRY
BADGES**

**LOOK OUT FOR OUR
OTHER BADGE SERIES!**

www.dOrbitalGames.org



LASER BADGE

Pew... pew... lasers fired. Playing with lasers is fun but can also be very time-consuming! Many scientists use lasers to conduct spectroscopy experiments. In addition, there are many lasers that scientists can use (Nd:YAG, Nd:Glass, InGaAs, etc.). This badge is represented by a single beam red laser.

Computational chemistry is a growing application within the chemistry community. Many college students are exposed to computational chemistry in general chemistry but majors learn more about the underlying theory and its utilization in physical chemistry. The unique shape of Barrelene is pictured on the screen.

COMPUTATION BADGE



DSC BADGE

Differential Scanning Calorimetry, better known by its acronym, DSC, is an instrument used to measure the change in the specific heat of a sample. In the physical chemistry laboratory, students use the DSC instrument to characterize the phase transition process of compounds. This badge shows the inside of a DSC.

Kinetic runs without messy intermediates are gratifying. Students monitor a reaction over time where old chemical species disappear and new chemical species appear during the reaction, resulting in an intersecting point of equal absorbance. This badge displays UV-vis spectra with a clean isosbestic point.

ISOSBESTIC POINT BADGE



BOMB CALORIMETRY BADGE

It's getting hot in here, and all the doors are closed. Students perform simple bomb calorimetry experiments in the general chemistry laboratory but learn the thermodynamic principles in more detail during the physical chemistry course. This badge shows the inside of a bomb calorimeter.

Three necks are better than one, particularly when it comes to synthesizing nanoparticles. The badge is represented by a color-changing three-neck round bottom flask to mimic how the sensitive tunability of nanoparticle size and shape can impact their light absorption and scattering properties.

THREE-NECK ROUND BOTTOM BADGE

