

Abstract Submitted
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Enhancing DC Glow Discharge Tube Museum Displays using a Theremin Controlled Helmholtz Coil to Demonstrate Magnetic Confinement THEODORE SIU, Rutgers University, Princeton Plasma Physics Lab, STEPHANIE WISSEL, LARRY GUTTADORA, SUSAN LIAO, ANDREW ZWICKER, Princeton Plasma Physics Lab — Since their discovery in the mid 1800's, DC glow discharge apparatuses have commonly been used for spectral analysis, the demonstration of the Frank-Hertz experiment, and to study plasma breakdown voltages following from the Paschen Curve. A DC glow discharge tube museum display was outfitted with a Helmholtz Coil electromagnet in order to demonstrate magnetic confinement for a science museum display. A device commonly known as a “theremin” was designed and built in order to externally control the Helmholtz Coil current and the plasma current. Originally a musical instrument, a theremin has two variable capacitors connected to two radio frequency oscillators which determine pitch and volume. Using a theremin to control current and “play” the plasma adds appeal and durability by providing a new innovative means of interacting with a museum exhibit. Educationally, students can use the display to not only learn about plasma properties but also electronic properties of the human body.

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