

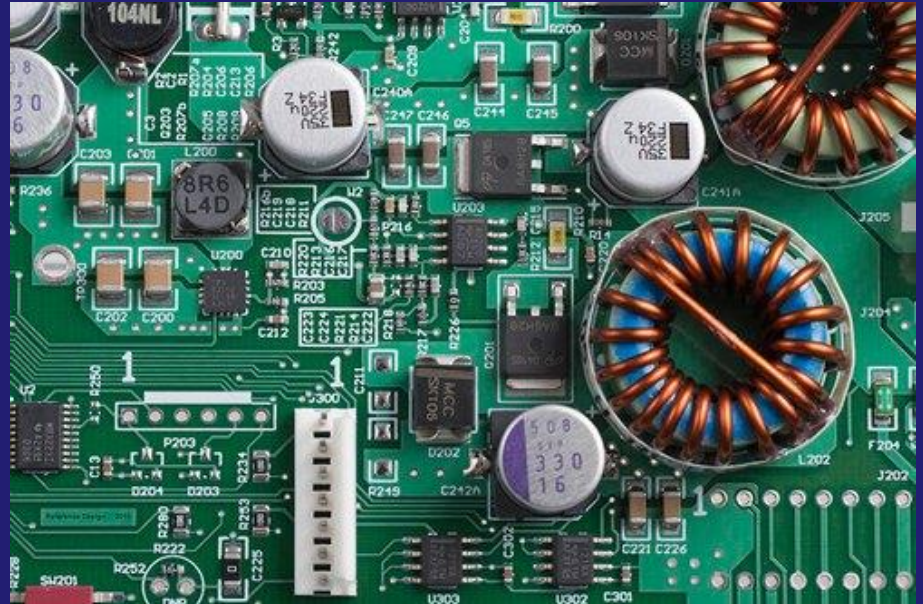
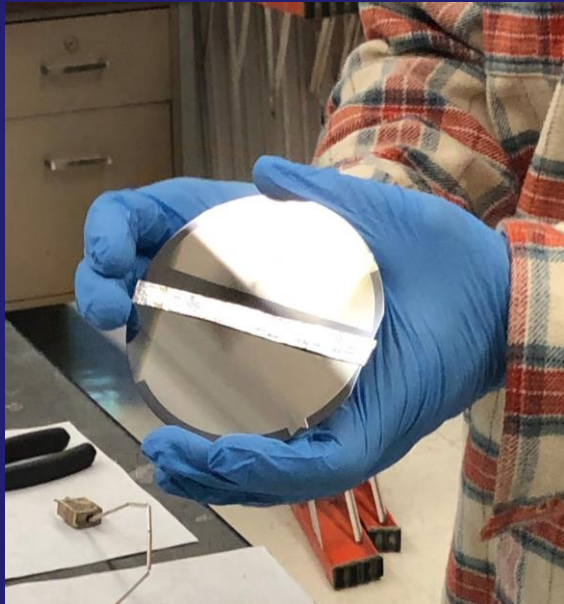
Consistent Operation of the Houghton College Deposition Chamber

By Jared M Malone & Brandon Hoffman



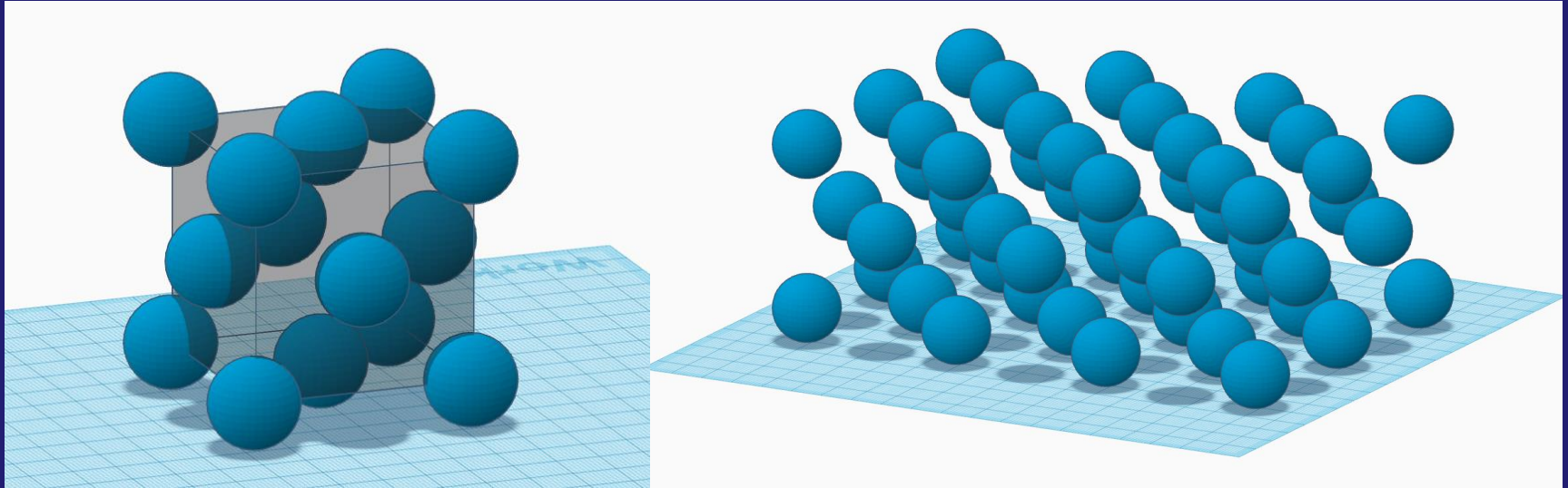
Why?

A Deposition Chamber allows for the local production of thin metal films for research.



Thin Metal Films and their Properties

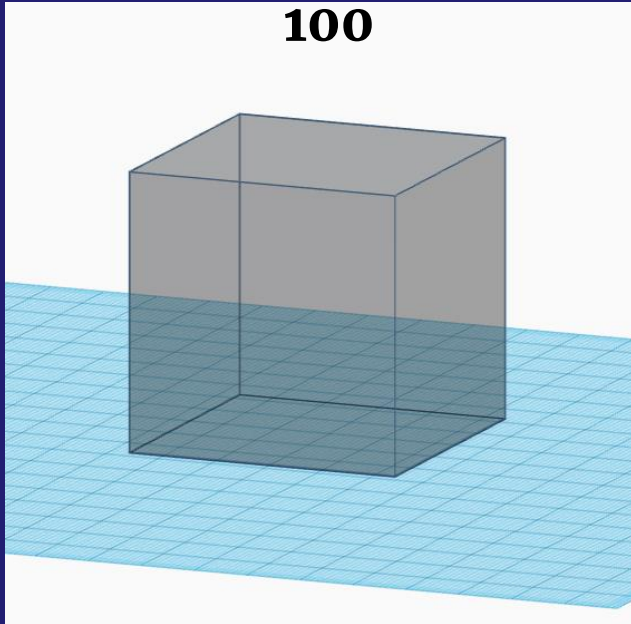
Atomic Structure



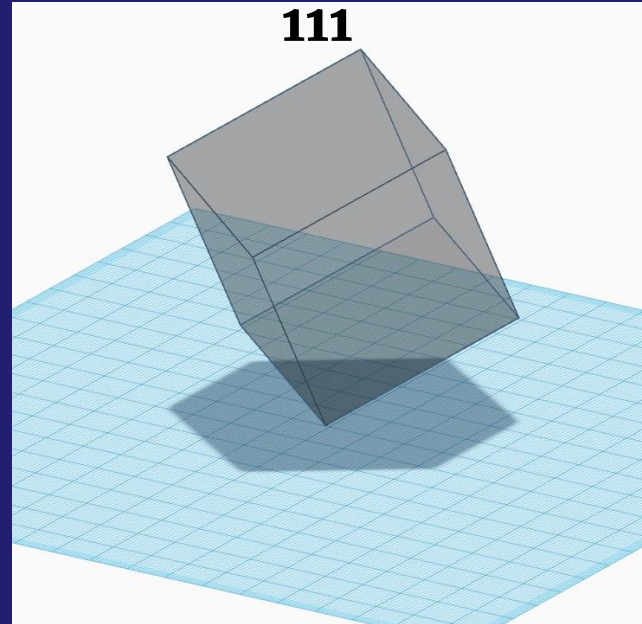
Thin Metal Films and their Properties

Orientation

100

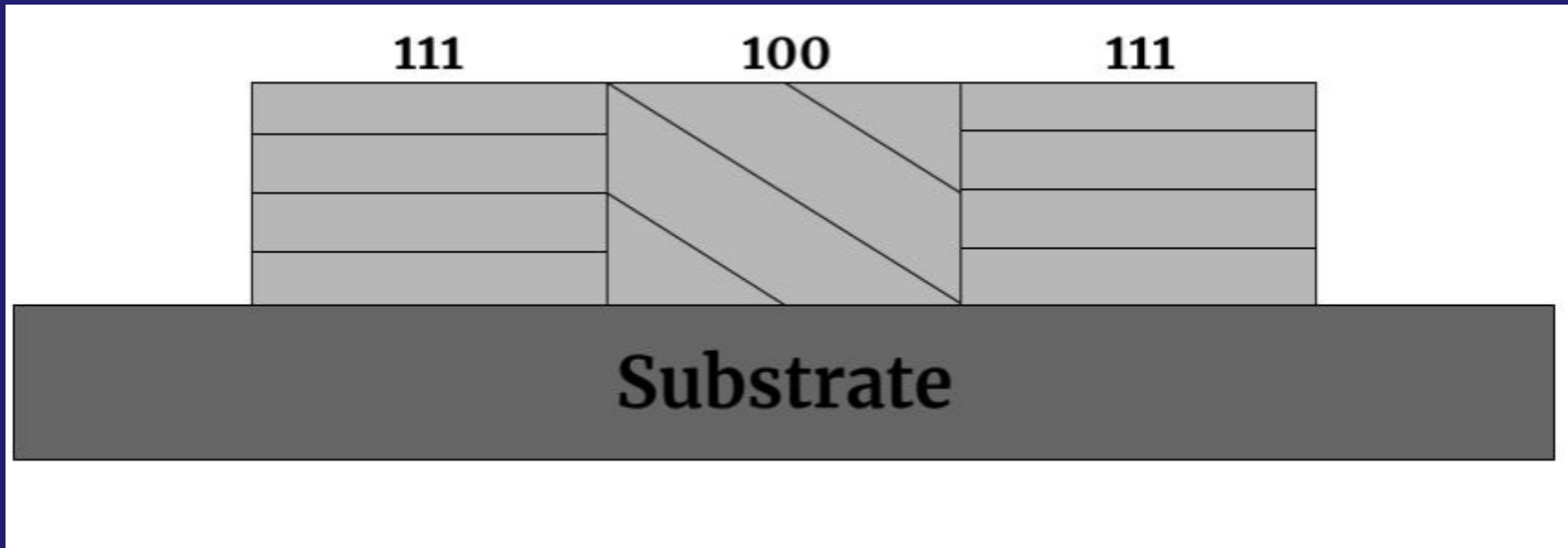


111



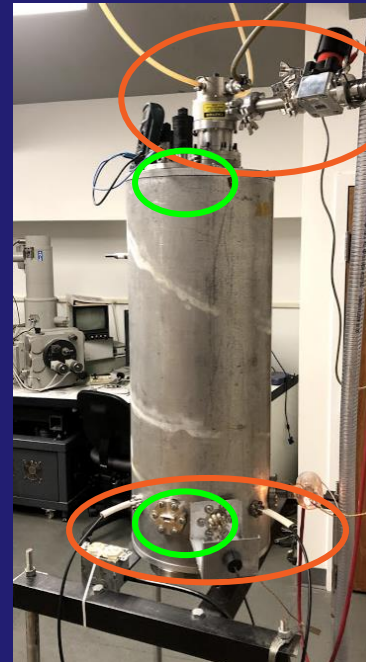
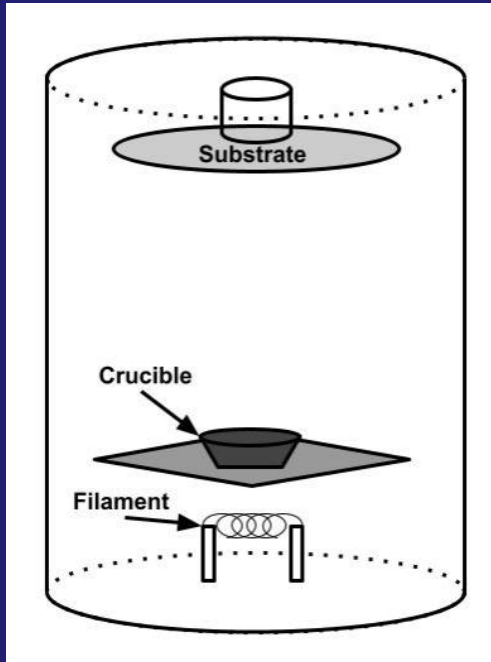
Thin Metal Films and their Properties

Transformation



What is a Deposition Chamber?

Equipment that produces thin metal films through physical deposition

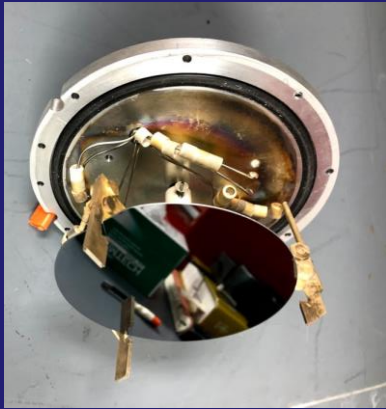


Vacuum System
Sample Holder

Electrical
Feedthroughs
Deposition
System

The Houghton College Deposition Chamber

Components



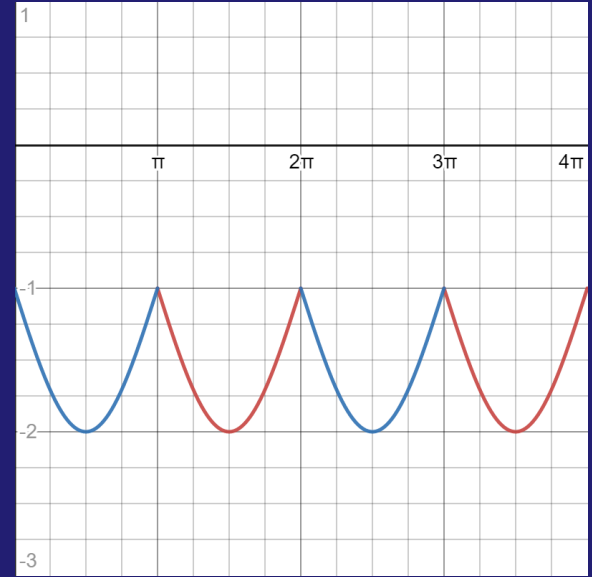
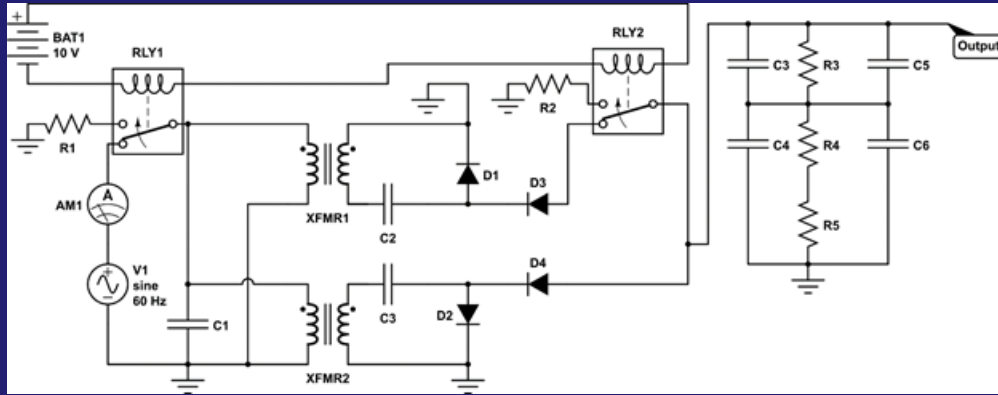
Sample Holder



Deposition System

The Houghton College Deposition Chamber

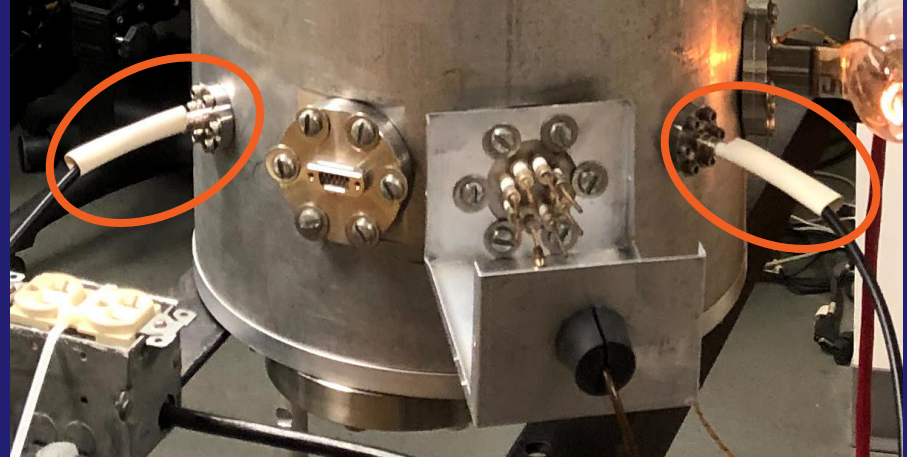
Components



High Voltage Circuit

Issues Preventing Consistent Operation

Sparking



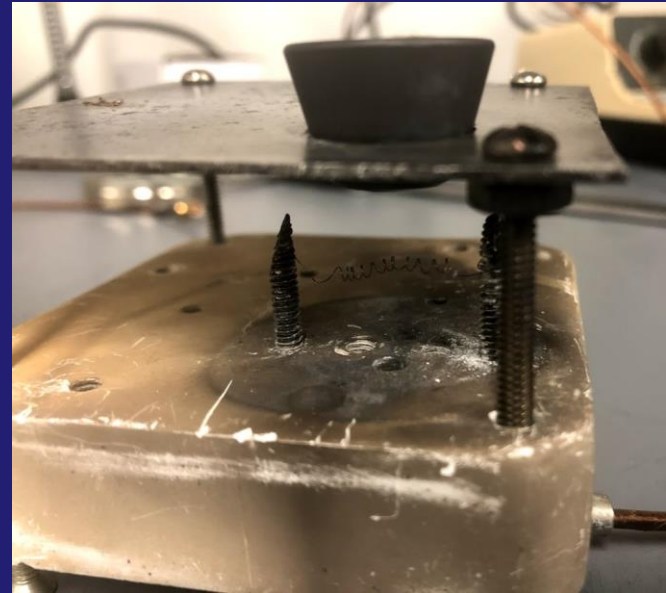
Issues Preventing Consistent Operation

High Voltage Circuit Functionality

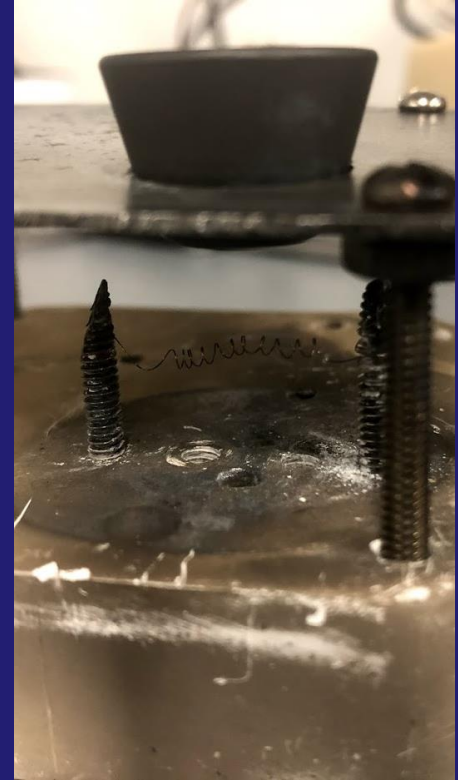
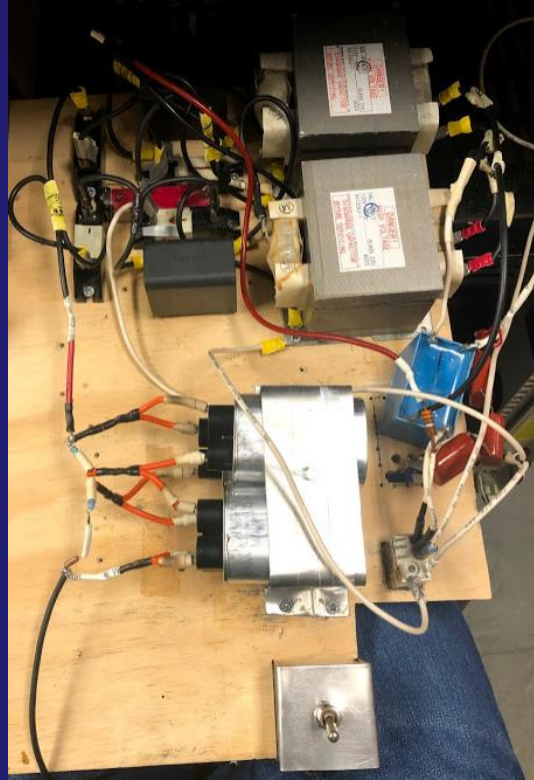


Issues Preventing Consistent Operation

Filament Grounding

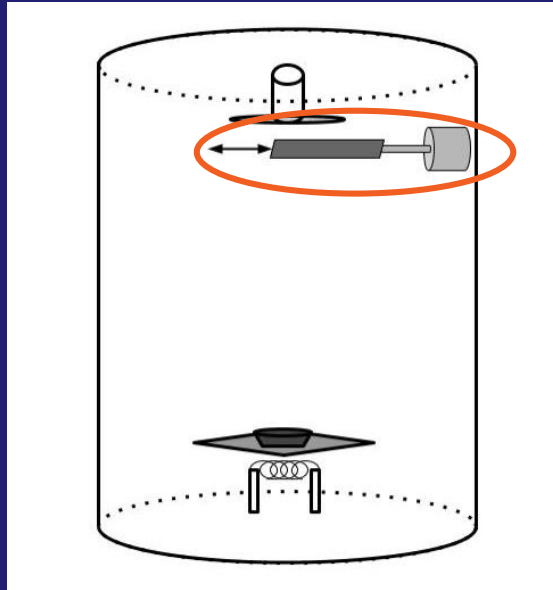


State of the Chamber



Future Plans

- Linear Shutter Construction and Installation



Future Plans

- Installation and Calibration of Deposition Rate Monitor



Thank You

Any Questions?

