

# Bryn Mawr Plasma Laboratory Projects Report

*Saturday, 21 January 2023 16:30 (1h 30m)*

The Bryn Mawr Experiment (BMX) is an experiment designed to measure and study plasma dynamics as turbulence movements. The BMX is a long chamber at high vacuum in which a plasma is created by puffing a small amount of hydrogen gas into the first section of the chamber where an electrode, powered by external capacitor banks, creates a voltage difference and ionizes the hydrogen into a plasma, which is then released down the rest of the chamber past the data taking probes before reaching the final section where the plasma cools back into gas.

In the past year, I worked on many smaller projects related to the BMX. The first is a small-scale test model of the main experiment called the glow discharge experiment. The second was building and testing a fast ionization gauge which will allow us to measure the velocity of the plasma in the BMX. Meanwhile, two statistical analysis methods known as PESCy and Bispectral Analysis are implemented to investigate wave coupling. We aim to testify the relationship between maximum complexity of time series and energy transfer between wave frequencies.

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**Session Classification:** Poster Session + Grad/Career Fair