# Developing a High Voltage Switch for Increased Penning-Malmberg Trapping Efficiency

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## AEgIS - Antimatter Experiment: Gravity, Interferometry, Spectroscopy

- Consists of a Penning-Malmberg trap used to trap and cool antiprotons from ELENA.
  - Produce antihydrogen and positronium for gravity measurements,etc.
  - Expanding the experiment to study antimatter bound species.
    - Nuclear fragments from antiproton annihilation.
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#### **Studying Nuclear Fragments**

- Antiprotons captured by anions in the trap leading to Auger ejection.
- Forms Highly Charged Ions (HCIs).
- Antiproton annihilation leads to nuclear fragments.
- Provides information on the structure of atomic nuclei and can act as probes in QED/QCD experiments.





### Improving the Trapping Efficiency

- Trapping potential for negative particles: -14 kV
- Current trapping potential for positive particles: 200 V
- My project: Develop a high voltage automated switch to increase the trapping efficiency of positive particles.





### Exploring - Croatia!



## Exploring - Geneva!

