

Abstract Submitted
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Experimental Manipulation of a Non-Neutral Ion Plasma Using FT-ICR Techniques CHAD WILLIAMS, BRYAN PETERSON, Brigham Young University — The goal of our project is to experimentally determine the half life of beryllium-7. We plan to do this by singly ionizing beryllium atoms and containing them in a non-neutral plasma state as they decay. In order to correctly make this measurement, however, we need a clean plasma of high density containing solely Be-7 atoms. Due to the variable amounts of impurities in the Be-7 samples produced in our lab, it is necessary to implement the technique of Fourier Transform Ion Cyclotron Resonance (FT-ICR). By exciting the cyclotron radius of these particles trapped in a magnetic field we seek to expel these impurities from the plasma, leaving pure Be-7. Also, a technique has been developed for successfully stacking multiple pulses of plasma inside of our Malmberg-Penning trap. Recent changes in the internal structure of trap confinement rings will grant us greater efficiency in the use of these techniques.

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