
Contribution ID: **380** Type: **Talk**

# Bridging the gap between spectroscopy of hot, radioactive ion beams, and cold, precise measurements

*Sunday 5 September 2021 14:00 (20 minutes)*

Atomic and molecular ions contained in RF traps are demonstrating to provide some of the most precise measurements possible of electron-nucleon interactions.
Atoms and molecules containing radioactive nuclei are predicted to offer significant enhancements to constrain beyond the Standard Model effects, including searches for time-reversal symmetry, dark matter candidates and yet to be observed nuclear properties.
However, radioactive atoms and molecules present challenges for precision spectroscopy: they are produced at low rates (often <1000 per second), in hot environments (>300 K) and require accelerated beam energies to isolate (>10 keV).
This contribution presents a setup under construction to efficiently adapt bunches of radioactive ions to a cryogenic ion trapping environment, which will additionally permit electric-field polarisation of molecules to allow for searches of eEDMs, nuclear Schiff moments and magnetic quadrupole moments.

**Primary author:** Dr VERNON, Adam (Massachusetts Institute of Technology)

**Presenter:** Dr VERNON, Adam (Massachusetts Institute of Technology)

**Session Classification:** Nuclear and particle astrophysics

**Track Classification:** Nuclear and particle astrophysics