Testing fundamental symmetries using radioactive ion beams at TRIUMF-ISAC

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The Isotope Separator and Accelerator (ISAC) facility at TRIUMF in Vancouver, British Columbia, makes use of a 500 MeV proton beam with intensities up to 100 μA to produce radioactive ion beams (RIBs) by the Isotope Separation On Line (ISOL) technique. At present, low energy ion beams from the ion source are delivered to several experimental stations that address a range of nuclear physics issues, many of which are important for precision tests of the Standard Model of particle physics. These include the TRIUMF Neutral Atom Trap (TRINAT) facility, the TRIUMF Ion Trap for Atomic and Nuclear Science (TITAN) facility, the 8π gamma-ray spectrometer, the General Purpose Station (GPS) 4π gas counter, and the Radon-Electric Dipole Moment (EDM) set up. There exists significant collaboration amongst the members of these facilities in various experiments. In this talk I will present an overview of the scientific motivation of the above mentioned experimental facilities, and their relevance to the broad rubric of Standard Model tests. I will also present results from a few recently concluded experiments.

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