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Probing Explosive Nucleosynthesis with TwinSol Measurements

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The nucleosynthesis occurring in astrophysical explosions can be very different than that which occurs in main sequence stars such as our sun. In fact, many of the properties of explosive astrophysical events are determined by the nuclear physics of the radioactive nuclei that power the explosion. At the University of Notre Dame TwinSol radioactive beam separator, exotic nuclei of astrophysical interest are being produced and studied in order to further our understanding of astrophysical explosions. In fact, TwinSol was one of the first such devices in the United States dedicated to radioactive beam production. Recent studies include the first neutron angular distribution measurement from a (d,n) reaction on an exotic beam and some of the most precise half-life measurements to constrain elements in the CKM matrix. These studies along with future plans and upgrades will be presented.

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