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Proposed Radiation Effects Beam Line for the K150 Cyclotron COURTNEY KNAUP, HENRY CLARK, Texas A&M University — Solar flares, cosmic rays and the Earth's Van Allen radiation belts serve as natural sources of space radiation. Such ionizing radiation is potentially harmful to the semiconductor components found in space vehicles and orbiting satellites. Aerospace engineers test the performance and durability of space bound materials and semiconductor devices with accelerated beams of heavy ions produced at laboratories on Earth. The recently recommissioned K150 cyclotron at Texas A&M University can provide accelerated beams similar to the ion species and energies experienced in space. A dedicated beam line has been proposed which includes a vacuum testing chamber and an in-air end station. The computer code "Transport" was used to determine the number of electromagnets needed and their optimal positions along the beam line so that both diffuse and focused beam spots can be produced at the target location. A list of ions at energies of 5, 14, 25A MeV/nucleon have been determined that will give experimenters sufficient range and linear energy transfer to test their semiconductor devices.

Courtney Knaup
Texas A&M University

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