

Abstract Submitted
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Rapid Pneumatic Transport of Radioactive Samples - RaPToRS

S. PADALINO, S. LYNCH, SUNY Geneseo, M. BARRIOS, Gettysburg College, C. SANGSTER, V. GLEBOV, LLE University of Rochester — Some ICF neutron activation diagnostics require quick retrieval of the activated sample. Minimizing retrieval times is particularly important when the half-life of the activated material is on the order of the transport time or the degree of radioactivity is close to the background counting level. These restrictions exist in current experiments performed at the Laboratory for Laser Energetics, thus motivating the development of the RaPToRS system. The system has been designed to minimize transportation time while requiring no human intervention during transport or counting. These factors will be important if the system is to be used at the NIF where radiological hazards will be present during post activation. The sample carrier is pneumatically transported via a 4 inch ID PVC pipe to a remote location in excess of 100 meters from the activation site at a speed of approximately 7 m/s. It arrives at an end station where it is dismounted robotically from the carrier and removed from its hermetic package. The sample is then placed by the robot in a counting station. This system is currently being developed to measure back-to-back gamma rays produced by positron annihilation which were emitted by activated graphite. Funded in part by the U.S. DOE under sub contract with LLE at the University of Rochester.

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