

Approaches to Alpha Knock-On Tail Measurements on ITER

R.K. Fisher

General Atomics, P.O. Box 85608, San Diego, California 92186-5608

Experimental techniques to measure the energetic DT neutron tail resulting from collisions between confined alphas and plasma fuel ions are discussed. The possibility of using bubble detectors with neutron energy thresholds above 15.5 MeV is being re-examined in light of the recent development of higher detection efficiency gel bubble detectors. These new detectors contain larger diameter drops of active detector liquid with a significantly narrower variation in the drop diameters, which may significantly reduce the problematic below-threshold response observed in our earlier tests with conventional bubble detectors. A second approach, the use of proton recoil tracks produced by neutron collisions in nuclear emulsions or in track etch detectors, will also be discussed. This work was supported by the U.S. Department of Energy under DE-FG03-92ER54150.