

PERSONAL DOSIMETRY MEASUREMENTS AT THE BEVALAC
WITH CR-39 AND NTA EMULSIONS AT A HIGH ENERGY ION ACCELERATOR

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ABSTRACT

An intercomparison of neutron measurement techniques was made outside of a 3-foot thick concrete shield at the Bevalac during a period when 670 MeV·A neon ions were stopped in a copper target. Measurements at 90° to the beam axis were made with CR-39 and NTA emulsions on both stationary and rotating phantoms. Comparisons were made with LiF thermoluminescent dosimeters in Andersson-Braun moderators, moderated BF₃ neutron fluence monitors, carbon-11 production above 20 MeV,³ and with measurements made with a Bonner multisphere neutron spectrometer. Of particular interest is the relative performance of CR-39 and NTA emulsion in a radiation field in which a large fraction of the dose equivalent is delivered by neutrons of energy greater than 20 MeV.