

ABSTRACT

We propose a single arm $d(e,e')$ experiment at electron energies up to 1.5 GeV in Hall A to extend the data for threshold electrodisintegration of the deuteron to the highest possible momentum transfer, limited by a cross section sensitivity of about $5 \times 10^{-42} \text{cm}^2 \text{sr}^{-1} \text{MeV}^{-1}$. In this region of momentum transfer the quark degrees of freedom are likely to be needed for a quantitative understanding, and one expects the threshold disintegration process to play as important a role in the study of non-nucleonic effects as it did at lower Q^2 in the study of mesonic degrees of freedom.

The excitation energy resolution will be 1 MeV, providing clear separation from the elastic scattering process. We request 600 hours of data taking at a current of 100 μA and 400 hours of check-out time at lower current.