

Abstract

We propose to use a circularly polarized photon beam at an incident photon energy range of 10 MeV to 40 MeV on a high-pressure polarized ^3He target to carry out a spin-dependent differential cross section measurement from three-body photodisintegration of ^3He . Such measurements will allow for a test of the state-of-the-art three-body calculations and represent an important study towards the ultimate goal of determining the GDH integral on ^3He from the two-body breakup threshold to the pion production threshold. We request a total beam time of 240 hours with 100% efficiency at a minimum photon flux of $5 \times 10^7/\text{s}^{-1}$ for a photon energy spread of 3.0%.