

Abstract Submitted  
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**First Use of Novel Techniques for Polarized  $^3\text{He}$  Targets** AIDAN  
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ORATION, JEFFERSON LAB POLARIZED 3HE TARGET COLLABORATION

— Spin-exchange optically pumped (SEOP)  $^3\text{He}$  targets have been successfully used in Hall A at Jefferson Lab as an effective polarized neutron target. Design requirements for E02-013 (Measurement of Sachs form factor  $G_E^n$  at high  $Q^2$ ) and a recent breakthrough in SEOP target cells suggested several changes to the target. SEOP targets use an optically pumped alkali metal to polarize a noble gas. E02-013 was the first electron scattering target to make use of an alkali metal mixture in place of a single alkali metal. These hybrid cells had a faster polarization time, and a higher overall  $^3\text{He}$  polarization. The result was a record in-beam polarization for an SEOP polarized  $^3\text{He}$  target. Previous SEOP targets in Hall A used a holding field supplied by a set of open Helmholtz coils. E02-013 used a magnetic box to provide a uniform magnetic field and to shield the target from the stray magnetic fields produced by the large acceptance open spectrometer placed close to the magnet. Several small polarimetry improvements were made. Innovations were also made to the measurements of the direction and homogeneity of the main holding field. These improvements will be discussed.

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