

Abstract Submitted  
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**Flux Conserver Improvements to HIT-SI and Ion Temperature Measurements** A.C. HOSSACK, C. AKCAY, D.A. ENNIS, T.R. JARBOE, B.A. NELSON, J.A. ROGERS, R.J. SMITH, B.S. VICTOR, J.S. WROBEL, University of Washington — Significant flux leakage from the mid-plane of the HIT-SI experiment has been observed, which decreases the spheromak helicity decay time. The HIT-SI flux conserver is joined at the mid-plane by a chromium copper ring and flexible spiral wrap electrically connecting the ring to each half of the flux conserver. A series of materials tests were undertaken to explore improvements to the electrical conductivity of the mid-plane junction. Nearly two orders of magnitude improvement was observed when the beryllium copper spiral wrap was plated with silver and the stainless steel flux conserver surface was plated with either silver or copper. These improvements have been implemented on the HIT-SI flux conserver and the results will be presented. Ion temperature data in the spheromak region collected with the Ion Doppler Spectrometer diagnostic are also presented. Overall trends indicate that ion temperature scales with injector voltage demand, but temperature scales inversely with injector flux demand. Work supported by US DoE.

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