

Abstract Submitted  
for the DPP12 Meeting of  
The American Physical Society

**Progress on the HIT-SI3 Experiment**<sup>1</sup> R.P. GOLINGO, J.A. ROGERS, D.A. ENNIS, C.J. HANSEN, A.C. HOSSACK, T.R. JARBOE, B.A. NELSON, G.J. MARKLIN, B.S. VICTOR, University of Washington — The HIT-SI program at the University of Washington is investigating the formation and sustainment of toroidal current using steady inductive helicity injection (SIHI). The HIT-SI experiment consists of a bow tie shaped flux conserver with two helicity injectors on opposite sides of the machine. All plasma facing surfaces are coated with an insulating material to prevent arcing. The injectors are driven 90 degrees out of phase leading to a constant rate of helicity injection. Presently toroidal currents up to three times the injector current are created in the device. Discoveries made during the operation have guided the design of an improved injection geometry. Three injectors, which will operate with 120 degree phase differences, are presently being assembled to be mounted on one side of the device. These injectors will have the same preferred direction and produce a rotating structure with less  $n=1$  than presently used. The injectors will operate at a higher frequency. The IDCD model predicts this will lead to a further reduction of the perturbations in the confinement volume. Additional diagnostic access has been gained by placing the injectors on one of the device. The present assembly status of the injectors and additional diagnostics for HIT-SI3 will be presented.

<sup>1</sup>Work supported by USDoE.

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Date submitted: 16 Jul 2012

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