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Overview of Recent Results from HSX[1] DAVID ANDERSON, University of Wisconsin-Madison, A. ABDOU, A.F. ALMAGRI, F.S.B. ANDERSON, A.R. BRIESEMEISTER, D.L. BROWER, UCLA, J. CANIK, C. DENG, UCLA, W. GUTTENFELDER, C. LECHTE, K.M. LIKIN, J. LORE, H. LU, S. OH, P.H. PROBERT, J. RADDER, V. SAKAGUCHI, J. SCHMITT, J.N. TALMADGE, K. ZHAI, University of Wisconsin-Madison — HSX has demonstrated that the quasihelical symmetry (QHS) does indeed improve single-particle confinement over a non-optimized 3-D configuration, as predicted. Some neoclassical differences have been observed under the present operating conditions. We have demonstrated that quasisymmetry leads to reduced parallel viscous damping. This work is being extended to look at flow damping in the presence of islands that locally break the quasihelical symmetry. We have concluded, by making comparisons of on-axis to off-axis heating, that thermodiffusion may account for profile differences, with low thermodiffusion in the QHS case as compared to the mirror case. Our goals are to increase the density, the magnetic field and heating power to accentuate neoclassical transport relative to anomalous. O-mode heating at B=1.0T will allow us to raise the density, decrease anomalous transport, reduce the population of the electron tail and raise the confinement time. A new mode of operation will allow comparisons of confinement over a wide range of effective ripple in a single device.

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