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Observation of Plasma Current Profile Evolution in Negative Central Shear (NCS) Discharges in the DIII-**D Tokamak**¹ R. JAYAKUMAR, S.L. ALLEN, T.A. CASPER, M. MAKOWSKI, Lawrence Livermore National Laboratory, T.C. LUCE, P.A. POLITZER, General Atomics, M.R. WADE, Oak Ridge National Laboratory — One of the major thrust areas in the DIII-D program is to obtain plasmas with a high value of $\beta_{\rm N}$ H along with a high bootstrap fraction of current. Such a plasma is expected to have a negative central shear which is favorable for stability to neoclassical tearing modes, ballooning and ITG modes. The EC current drive will tailor the current profile at the precise location to maintain the desired current profile against central peaking due to transport or a hollowing due to high edge bootsrap currents. Ability to obtain between-shot equilibrium fits has enabled feedback into the shot tuning process and the previous success in achieving high $\beta_{\rm N}{\rm H}$ for a significant duration has been reproduced. However, the recent divertor upgrade has resulted in a lower Z_{eff} and hence the current profile evolution is different. This paper will present the analysis of current profile evolution in DIII-D shots using EFIT and CORSICA codes and magnetic probe and motional stark effect data.

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