Category Number and Subject: Undergraduate Student

[   ] Theory   [X] Experiment

Fast Method for Radial Electric Field Correction of Motional Stark Effect Data in DIII-D,[*] L.J. Bergsten, *Dartmouth College*; C.C. Petty, T.C. Luce, *GA*; C.T. Holcomb, *LLNL* – A fast and easy method to correct the motional Stark effect (MSE) data used in equilibrium reconstruction on the DIII-D tokamak by including the radial electric field effect in the determination of the magnetic pitch angles has been created. Previously, two methods for calculating motional stark effect were possible – one in which the radial electric field is completely ignored and the other in which the radial electric field is determined by manually fitting the radial force balance equation. This project develops a new equilibrium reconstruction procedure that is automatic and easy to use, in which only the toroidal rotation component of radial force balance is used to correct the MSE data for the radial electric field. This is expected to give a more accurate result than ignoring the radial electric field effect for discharges with co-neutral beam injection. Comparisons of equilibrium reconstructions using the approximate and complete determination of the radial electric field will be made.