

Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

CheasePy: A Wrapper for CHEASE Code to Reconstruct the MHD Equilibrium of Modified Plasma Profiles and Geometry¹ EHAB HASSAN, DAVID HATCH, GABRIELE MERLO, University of Texas at Austin — Testing the sensitivity of microturbulence to the variation of pedestal profiles within uncertainties is of great importance for understanding the transport mechanisms that govern pedestal evolution and structure. CheasePy is an Open Source/Access Python script that works as a wrapper to the CHEASE (Cubic Hermite Element Axisymmetric Static Equilibrium) code developed in FORTRAN at Ecole Polytechnique Fdrale de Lausanne, Switzerland, to solve the Grad-Shafranov equation for toroidal MHD equilibria using pressure and current profiles at fixed plasma boundaries that is defined by a set of data points (R,Z)¹. The CheasePy script allows an iterative running of the CHEASE code either to check the preservation of MHD equilibria or converge to an experimentally defined total toroidal current by modifying the bootstrap or parallel currents. CheasePy also adopts a capability for fitting and modifying the experimental profiles of the electron and ion density, temperature, and pressure, in addition to scaling the geometry coefficients to any Tokamak-like machine, then reconstructing a new MHD equilibrium under the new plasma conditions. ¹ Ltjens, Hinrich, Anders Bondeson, and Olivier Sauter. "The CHEASE code for toroidal MHD equilibria." Computer physics communications 97.3 (1996)

¹The authors appreciate the valuable discussions with O. Sauter from Ecole Polytechnique Fdrale de Lausanne, Switzerland about the data flow and representation in the CHEASE code. This work was supported by the US DOE under DE-FC02-04ER54698 and SciDAC under DE-SC0018148.

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Date submitted: 08 Jul 2020

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