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Overview of the ArbiTER edge plasma eigenvalue code DEREK BAVER, JAMES MYRA, Lodestar Research Corporation, MAXIM UMANSKY, Lawrence Livermore National Laboratory — The Arbitrary Topology Equation Reader, or ArbiTER, is a flexible eigenvalue solver that is currently under development for plasma physics applications. The ArbiTER code builds on the equation parser framework of the existing 2DX code, extending it to include a topology parser. This will give the code the capability to model problems with complicated geometries (such as multiple X-points and scrape-off layers) or model equations with arbitrary numbers of dimensions (e.g. for kinetic analysis). In the equation parser framework, model equations are not included in the program's source code. Instead, an input file contains instructions for building a matrix from profile functions and elementary differential operators. The program then executes these instructions in a sequential manner. These instructions may also be translated into analytic form, thus giving the code transparency as well as flexibility. We will present an overview of how the ArbiTER code is to work, as well as preliminary results from early versions of this code. Work supported by the U.S. DOE.

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