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Correlating heat-flux profiles on divertor plate with input beam power for the DIID-D tokamak using the FACETS code AMMAR HAKIM, Tech-X Corporation, Boulder, CO. USA, RICHARD GROEBNER, General Atomic Corporation, San Deigo, CA 92186, SCOTT KRUGER, ALEXANDER PLETZER, SRINATH VADLAMANI, JOHN CARY, Tech-X Corporation, Boulder, CO. USA, THOMAS ROGNLIEN, RONALD COHEN, Lawrence Livermore National Laboratory, Livermore, CA. USA — We present results from coupled core-edge simulations of tokamak transport equations using the FACETS code. In particular, we correlate the heat-flux profile on the divertor plate with the input heating beam power for the DIII-D tokamak. For the core transport equations we use a new core solver developed as part of the FACETS project. The solver uses a fully implicit multigrid method to advance the non-linear transport equations. The beam heating profiles for the ions and electrons are obtained from experimental DIII-D discharges and computed using the ONETWO code. For the edge transport we use the two-dimensional fluid code UEDGE. The solutions in the core region is coupled to the edge regions using an implicit coupling scheme. Computational diagnostics are used to extract the heat flux profiles on the divertor plate. Correlations of the peak heat flux on the divertor plate with input beam power are made. These results are compared to experimental correlations obtained from DIII-D data.

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