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Particle-in-cell modelling of plasma deposition in castellated divertor targets RADOMIR PANEK, MICHAEL KOMM, RENAUD DEJARNAC, Institute of Plasma Physics AS CR, v.v.i., Association EURATOM/IPP.CR, Prague, Czech Republic, JAMES GUNN, Association EURATOM/CEA, CEA/DSM/DRFC, Centre de Cadarache, France — JET and ITER plasma facing components (PFC) are segmented into cells to minimise the mechanical stress that is produced by thermal expansion of the components under plasma/radiative loads. This complex geometry introduces a significant complication in the estimation of the power load of these components, as the gap width can be comparable to the ion Larmor radius. We present results of two-dimensional, self-consistent kinetic simulations of this problem using the SPICE2 code based on a particle-in-cell technique. It has been developed for edge plasma simulations using arbitrary velocity distribution functions. The code is highly optimized and is designed for computationally demanding simulations. The code follows the charged particle trajectories on their way to the PFCs and estimates the plasma deposition in a non-symmetric electric potential. The results of power and particle loads calculations are presented for JET and ITER conditions.

Radomir Panek
Institute of Plasma Physics AS CR, v.v.i.,
Association EURATOM/IPP.CR, Prague, Czech Republic

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