

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Plasma Shape Effect on Tokamak Electric Fields PABLO MARTIN, ENRIQUE CASTRO, Universidad Simon Bolivar — This work considers the effects of tokamak plasma shape, mainly ellipticity and triangularity, on the different components of the electric field. The plasma shape parameters influence mainly the poloidal and transversal electric fields, however the effect on the toroidal electric field is also analyzed. Resistive MHD equations are used for this treatment, as well as, new differential equations obtained by applying the curl operator on the original equations. Curvilinear coordinates described in previous papers are used [1]. In our treatment first, the transversal, poloidal and toroidal velocities are obtained as a function of some geometric parameters and values along some radius lines. The electric field determination comes after that. Axisymmetric conditions are used. Though our treatment is general, some simplifications can be obtained when additional up-down geometry symmetry is assumed. Application of our equation to different tokamaks is performed and compared with the results of previous authors.
[1] P. Martin, E. Castro and M. Haines, *Phys. Plasmas*14, 052502 (2007)

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Date submitted: 08 Jul 2010

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