

Abstract Submitted
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Ion orbit loss effects on radial electric field in tokamak edge for standard and snowflake divertor configurations¹ M.V. UMANSKY, LLNL, D.D. RYUTOV — Neoclassical orbits and related non-ambipolar losses in tokamak edge are sensitive to the radial electric field E_r ; therefore an electric field in the edge may be affected by the ion orbit prompt loss at the null point [1]. This effect may be sensitive to the details of magnetic field near the null-point. In the snowflake divertor configuration [2], the prompt loss is quite different from that in the standard X-point configuration since the zone affected by the prompt loss in snowflake geometry is significantly larger than that for the standard X-point [3]. Here we extend the analytic study in [3] by including the effects of electric field and collisions using numerical calculation of drift orbits. Radial electric field induced by the prompt loss is compared for otherwise similar standard x-point configuration and a snowflake.

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[2] D.D. Ryutov, Phys. Plasmas, 14, 064502, June 2007.

[3] D.D. Ryutov and M.V. Umansky, Phys. Plasmas, 17, 014501 (2009)

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