

Abstract Submitted
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Modifying COGENT to Study Snowflake Divertors¹ R.H. COHEN, CompX, M. DORF, M. DORR, D.D. RYUTOV, LLNL — The snowflake divertor concept entails modifying the poloidal field system of a tokamak to produce a 2nd-order null in magnetic-field strength in place of the conventional 1st-order null x point within the equilibrium magnetic-field separatrix. It more effectively spreads the divertor heat load and offers a number of other advantages. We describe plans to modify the COGENT edge kinetic code to study snowflake divertors. COGENT employs mapped multi-block grid technology to handle the geometric complexity of the conventional divertor configuration. To simulate snowflake divertors, the number of grid blocks is increased from 8 to 12, consistent with the modified topology of the exact snowflake configuration. We examine the applicability of the modified structure to study configurations that are not exactly snowflakes, the so-called “snowflake-plus” and “snowflake-minus” configurations. Initial applications of the modified code will be assessment of collisionless orbit dynamics and neoclassical transport.

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Ronald Cohen
CompX

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