

Abstract Submitted
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Non Axisymmetric Three-Dimensional Magnetic Bernstein-Greene-Kruskal (BGK) Modes¹ CHUNG-SANG NG, Geophysical Institute, University of Alaska Fairbanks — The theory of three-dimensional (3D) magnetic Magnetic Bernstein-Greene-Kruskal (BGK) modes [L.-J. Chen and G. K. Parks, Geophys. Res. Lett., 29, 1331 (2002)] has been generalized to the non axisymmetric case. While the shape of the electrostatic structure is usually elongated along the direction of the strong large-scale magnetic field, a limiting case with the elongated direction along one of the perpendicular direction is also possible. Essentially this makes the solution 2D with the magnetic field on the 2D plane. Note that such 2D BGK modes are very different from those described by another theory [Ng, Bhattacharjee, and Skiff, Phys. Plasmas, 13, 055903 (2006)], of which the magnetic field is perpendicular to the 2D plane. This theory might explain 2D BGK modes observed in some numerical simulations [Wu et. al, J. Geophys. Res., 115, A10245 (2010)].

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