Ellipticity and triangularity effects in tokamak Alfven spectrum[1]

JULIO PUERTA, PABLO MARTIN, ENRIQUE CASTRO, Universidad Simon Bolivar, EDER VALDEBLANQUEZ, Universidad del Zulia — Plasma configurations with ellipticity and triangularity are usual in tokamak experiments. These plasmas can be studied using a new system of coordinates of recent publications. Here this method has been applied to study Alfven spectrum in axisymmetric tokamaks with different values of ellipticity and triangularity [1-3]. Previous authors have developed numerical methods to obtain the Alfven spectrum using the Shafranov-Solove'v equilibrium flux function where the parameter ellipticity is also included [3]. Here more general configurations are treated and compared with the results of these authors, as well as those derived for the geometric optics or WKBJ approximation. The Alfven wave dispersion relation is obtained by the linearization of the MHD equations around a stationary equilibrium and the results are obtained by numerical calculations. [1] P. Martin, M. G. Haines and E. Castro, Phys. Plasma **12**, 082506 (2005) [2] L. L. Lao, S. P. Hishman and R. M. Wieland, Phys. Fluids **24**, 1431 (1981); H. Weitzner's Appendix. [3] G. O. Ludwig, Plasma Phys. Controlled Fusion **37**, 633 (1995) [4] S. Novo, M. Núñez and J. Rojo, Phys. Fluids B **3**, 2967 (1991)

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