

Abstract Submitted  
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**Effects of continuous spectra due to plasma rotation on numerical computation of tearing mode stability**<sup>1</sup> M. FURUKAWA, T. NAKATSU, Grad. Sch. Frontier Sci., U. Tokyo — When we solve the eigenmode equation numerically for resistive MHD tearing modes in cylindrical plasmas with sheared poloidal rotation, we observe that the growth rate of the tearing mode in the absence of the plasma rotation can be increased by the sheared plasma rotation. If the plasma rotation frequency is increased further, we observe that the growth rate starts to decrease. At the same time, we also observe other unstable modes with their growth rates smaller than the tearing mode. Those growth rates increase as the plasma rotation frequency is increased, and merge with the growth rate of the tearing mode eventually. When we solve the so-called inner-layer equation of the asymptotic matching theory for resistive MHD tearing modes including sheared plasma rotation numerically, we also observe similar phenomena. These phenomena are considered as an artificial instability. The relationship between these phenomena and the continuous spectra due to the plasma rotation is discussed.

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