

Abstract Submitted
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The helical kink STABILITY in plasmas. MASARU IRIE, Waseda University, MIYOKO KUBO-IRIE, The Open University of Japan — The helical plasma instability was known for half a century before and it was one of the key issue in the plasma fusion research. The three dimensional MHD simulation on the low pressure linear plasma has been conducted in National Institute of Fusion Sciences around 80's in the consequence with plasma reconnection and Dynamo-effect closely related to the Reversed Field Pinch Plasma as well as the Spheromak / Compact Torus. Both of these trends aiming for controlling the plasma instability especially with current density over 1MA/m². On the other hand in arc discharge field, helical plasma instability in the current zero region was one of the main issue and explained especially in this: Ruhr University Bochum under Prof. Jurgen Mentel. In this proposed presentation, we would like to concentrate on controlling the plasma profile and demonstrate the existence of the stable helical plasma and discuss the application of these techniques by applying massively parallel but bench top GPGPU system. This should give good simulation on the fusion plasma such as the Internal Transport Barriers and Serpens mode. [1] H.G.Hulsman & J.Mnetel, Phys.Fluids, 30, 2275(1987) [2] T.Sato,T.Hayashi & R.Horiuchi , Private Communication.

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