

Abstract Submitted
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MHD-Stabilization of Axisymmetric Mirror Systems Using Pulsed ECRH R.F. POST, Lawrence Livermore National Laboratory — A method of MHD-stabilizing axisymmetric mirror systems, demonstrated in the Gas Dynamic Trap [1] and analyzed by Ryutov [2] employs low pressure plasma on expanding field lines outside the mirrors. Methods of creating such plasmas have been analyzed [3]. This paper studies another technique: Pulsed ECRH in regions of positive curvature. The ansatz: If the repetition time is shorter than the MHD growth time, and if their time-averaged amplitude is exceeds that required by the theory the system will be stable. The calculations confirm the ansatz. Applications include axisymmetric tandem mirror and multiple-mirror systems. In the latter it might perform the functions of MHD-stabilization and of biasing cell-loss probabilities inwardly. Post and Li [4] showed that such biasing leads to confinement times that increase exponentially with the number of cells, rather than linearly, as occurs with symmetric losses. Prepared by LLNL under Contract DE-AC52-07NA27344. [1] P. A. Bagryansky, et. al., Trans. Fusion Tech. **35**, 79 (1999) [2] D. D. Ryutov, Proc. of Course and Workshop, Varenna, Italy, Vol II, 791 (1987) [3] R. F. Post, Trans. Fusion Tech., **39**, 25 (2001) [4] R. F. Post and X. Z. Li, Nuc. Fusion, **21**, 135 (1981).

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