

Abstract Submitted
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Feedback effect on flute dynamics in a mirror machine ILAN BE'ERY, OMRI SEEMANN, Technion Institute of Technology — Active feedback techniques may stabilize the flute instability in mirror traps and make them viable candidates for fusion machines. A fast feedback with optical sensors and electrical actuators was implemented in a table-top mirror machine and used to study several aspects of feedback stabilization. For a cold, dense plasma the feedback reduces dramatically the flute amplitude of the first two mode. For higher temperature plasma, a significant increase of plasma density due to feedback stabilization is also demonstrated. The effect of changing feedback gain and phase has some interesting feature such as asymmetry with respect to positive and negative phase shifts and non-monotonic dependence of flute amplitude on feedback gain. These effects are explained using simplified analytic model of the flute and feedback.

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