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Active feedback stabilization of flute instability in a mirror trap ILAN BE'ERY, OMRI SEEMANN, Technion - Israel Institute of Technology, AMNON FRUCHTMAN, Holon Institute of Technology, AMNON FISHER, AMIRAM RON, Technion - Israel Institute of Technology — The flute instability in a table-top mirror machine has been stabilized by a feedback system consisting of optical probes, digital signal processor, and needle electrodes. The total response time of the system is 5μs, which is considerably faster than the typical flute growth time. Simulation and a dynamic model of the plasma's response to the needle actuators were tested against cyclic bias experiments. The plasma density is increased by the stabilization by a factor of two and is limited by other decay processes.

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