Resistive Wall Feedback Stabilization

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Abstract

A feedback system, which essentially makes a resistive wall appear ideally conducting, is discussed. Such a system applied to a resistive wall surrounding a plasma will stabilize certain modes which would be unstable in the absence of the feedback system. The system discussed is similar to the "intelligent shell" by Bishop [Plasma Phys. and Contr. Fusion 31, 1179 (1989)]; it utilizes a number of autonomous subsystems, each covering only a fraction of the resistive wall. A model example discussed suggests that only relatively few autonomous subsystems are needed and that the requirements of the electronics appear modest.

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