

Abstract Submitted
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A Study of "Intelligent Shell" Feedback¹ T.H. JENSEN,
General Atomics — The "intelligent shell" is a resistive wall equipped
with a feedback system which makes it appear (almost) ideally conduct-
ing to the plasma. A number of problems associated with this concept
has been discussed previously.^{2,3,4} This poster deals with two specific
problems, namely how the stabilization efficiency is affected by the num-
ber of feedback loops employed and by gaps between sensor loops. These
effects are studied using a model for which the initial equilibrium is of
slab geometry (y and z are ignorable) while the perturbed equilibrium
is periodic in y and independent of z so that flux surfaces exist. The
electronics involved is assumed ideal and the problem is formulated as
an eigenvalue problem which is solved numerically. In the limit of in-
finitely many loops without gaps between sensor loops, the resistive wall
appears ideally conducting to the plasma. For a finite number of loops,
the resistive wall appears as an ideally conducting wall located somewhat
outside the resistive wall.

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²C.M. Bishop, Plasma Phys. and Contr. Fusion **31** 1179 (1989).

³R. Fitzpatrick and T.H. Jensen, Phys. Plasmas **3** 2641 (1996).

⁴T.H. Jensen and R. Fitzpatrick, General Atomics Report GA-A22526
(1997), to be published in Phys. Plasmas.

Prefer Oral Session
 Prefer Poster Session

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