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(54) Title: VARIABLE EFFICIENCY FARADAY SHIELD

(57) **Abstract:** A faraday shield (300) for use with a plasma reactor (930) has a variable shielding efficiency. The shield (300) is divided into numerous shield segments (320) that may each be selectively grounded or ungrounded. The rate of transition between fully ungrounded and fully grounded states is controllable so as to maintain stable plasma conditions in the plasma reactor (930) during the transitional period. The time rate of change of the shielding efficiency can be controlled at a predetermined rate once plasma strike is achieved, or can be made conditional to successful matching at the previous shield setting. When the Faraday shield (320) is fully grounded, the amount of on-wafer and on-chamber contamination is reduced by reducing the rate of sputtering of chamber surfaces.