Abstract Submitted
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**Vertical Stability and Control on SPARC**[1] D.T. GARNIER, GRANETZ R.S., J. IRBY, C. REA, R SWEENEY, MIT Plasma Science and Fusion Center, A.J. CREELY, Commonwealth Fusion Systems, SPARC TEAM — For its highest performance discharges, SPARC is being designed with a strongly shaped equilibrium with high elongation and triangularity ($\kappa_{sep} = 1.97$ and $\delta_{sep} = 0.54$). While these parameters have been achieved with similar aspect ratio ($\epsilon = 0.31$) in the KSTAR and EAST tokamaks, the tendency for reduced vertical stability with increasing elongation is well known, and the importance of triangularity has more recently been explored[1]. As a high field, high current tokamak, SPARC will have a thick-walled, close-fit vacuum vessel and sections of toroidally continuous plasma first wall components which will provide passive stabilization with a time constant of $\sim 30$ msec. In-vessel copper coils will be utilized for active vertical control. Scenario modeling has provided initial estimates of required passive elements and vertical stability coil specifications. Analysis of the passive stability parameters and expected maximum actively controllable z-distrurbance will be presented.

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