

Abstract Submitted
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Improvements to the vertical control of KSTAR¹ DENNIS MUELLER, E. KOLEMEN, Princeton University, S.H. HAHN, NFRI, N.W. EIDLETIS, General Atomics, J.H. KIM, S.W. YOON, H.S. KIM, NFRI — The control of plasma shape in KSTAR requires, a fast vertical control system to maximize the range of elongation that can be controlled. Slow motion of the vertical center of the plasma can be controlled by the superconducting coils, but the dynamic response of these coils is too slow to provide control of fast transients. The internal vertical control coil (IVC) is the actuator best suited to control of fast transients. To date, KSTAR has relied on a simple combination of magnetic probe signals to provide a fast z position measurement. During the 2012 run, two pairs of voltage loops, each pair consisting of one loop above and one loop below the plasma at the same major radius, were instrumented to provide their difference to the plasma control system (PCS). These two signals are sensitive to the plasma vertical velocity (dz/dt). The use of these signals in the fast vertical control feedback loop during the 2013 KSTAR experimental campaign will be described and their efficacy in extending the available plasma elongation in KSTAR will be discussed.

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