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Preliminary Analysis of Position and Shape Control of Ignitor Plasmas*1 F. VILLONE, R. ALBANESE, G. RUBINACCI, CREATE (Napoli), Italy, V. COCILOVO, A. COLETTI, A. CUCCHIARO, A. PIZZUTO, G. RAMOGIDA, M. ROCCELLA, M. SANTINELLI, ENEA, Italy, B. COPPI, M.I.T. — The CREATE_L linearized MHD deformable plasma response model² has been applied to the plasma configurations that Ignitor can produce. This model assumes an axisymmetric plasma described by few global parameters (β_{pol}, l_i, I_p) and an effective resistance. The growth rate of the vertical stability and the power required by active stabilization systems have been estimated, confirming the possibility of achieving an effective stabilization by the Poloidal Field Coil (PFC) system as presently designed. The position control involves two sets of coils with up-down anti-symmetric currents, while all the other coils have up-down symmetric currents. The two pairs of coils that provide the most efficient vertical control are P6 and P12. The required power and voltage match the present power supply system. In addition, a preliminary assessment of the requirements for the control of the plasma cross section shape has been carried out. The results show that by using the PFC system it is possible in principle to reject undesired shape modifications due to plasma perturbations.

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