

Development of a new CODAS for the TCABR tokamak

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An update is being conducted on the TCABR tokamak, which is a small tokamak ($R_0 = 0.62$ m and $a = 0.2$ m) operated at the University of São Paulo, Brazil. This update mainly consists of the installation of (i) graphite tiles to fully cover the inner surface of the vacuum vessel wall, (ii) new poloidal field (PF) coils to allow the generation of various diversion configurations, such as single-null, double-null, snowflake and x-point target divertors, (iii) HFS in the vessel and non-axisymmetric control coils for ELM suppression studies and (iv) a coaxial helical injection system to improve plasma initialization. Among other objectives, this update will allow studies of the impact of the RMP fields in advanced diversion configurations, such as the x-point target and the snowflake diversion. The creation of the various plasma scenarios foreseen for the TCABR will require a new robust and flexible plasma control system, improvements in the data acquisition and data analysis system, and in the supervisors who monitor the various systems involved in the operation of the tokamak. In this way, several studies are being conducted in the implementation of the EPICS (Multithreaded Application Real-Time executor), MARTE (Experimental Physics and Industrial Control System) systems and improvements in the MDSplus (Model Driven System Plus) system already widely used in the TCABR tokamak. In this work, we will present the studies of this new implantation.

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