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**Conceptual Design of a Small Aspect Ratio Tokamak of Variable Configuration** JULIO HERRERA-VELAZQUEZ, ISMAEL ARROYO-DIAZ, DOMENICA CORONA-RIVERA, Instituto de Ciencias Nucleares, UNAM, ESTEBAN CHAVEZ-ALARCÓN, Instituto Nacional de Investigaciones Nucleares — We show the preliminary work being done in order to propose a mid-term project for a Mexican nuclear fusion programme, with the necessary flexibility to produce original results. The purpose is to study the feasibility of a medium size, low aspect ratio tokamak, with the capability of actively controlling the shape and position of the plasma column. Its objective would be to explore the necessary operational conditions for high  $\beta$  and high bootstrap currents. The 3D-MAPTOR code is used in order to estimate the magnetic field surfaces behaviour. The TEMEX tokamak would consist in a stainless-steel toroidal vacuum chamber with semi-rectangular cross section, with external toroidal and poloidal field coils. The central post would include the central solenoid, as well as inner control coils. The toroidal magnetic field is produced by 10 rectangular coils, made out of 40 turns of water cooled copper conductor. Six poloidal field coils have been included, distributed in two groups of three, one on the upper, and another one on the lower side of the torus.

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