

## MECHANICAL ASSESSMENT OF THE JT-60SA TF COILS IN SEISMIC CONDITIONS

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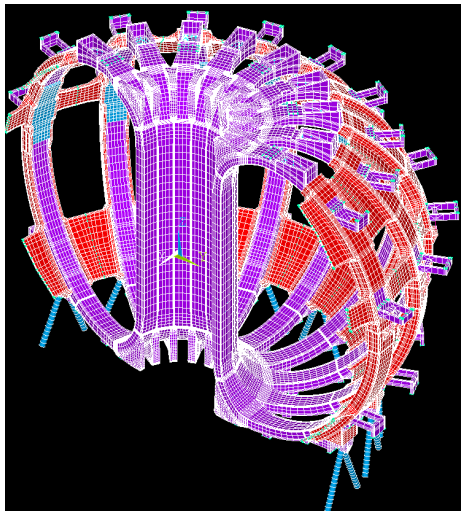
The JT-60SA is a fusion experiment designed to contribute to the early realization of fusion energy, by providing support to the operation of ITER, by addressing key physics issues for ITER and DEMO and by investigating how best to optimize the operation of the next fusion power plants that will be built after ITER.

It is a combined project of the JA-EU Satellite Tokamak Program under the Broader Approach (BA) Program and JAEA's Program for National Use, and it is to be built in Naka, Japan, using the infrastructure of the existing JT-60U experiment.

This paper describes the Finite Element Analysis performed at F4E to assess the mechanical behaviour of the TF Coils under the typical seismic load of the Naka site. For this purpose, a 9 coils linear model has been developed with ANSYS.

One particular type of boundary conditions has been evaluated: the TFC are not energized, and all components are at room temperature. This represents the most demanding conditions for the magnet system, as the wedge structure does not add any stiffness due to the lack of centripetal forces; and the elastic limit of materials are lower than in cryogenic conditions.

The results of the analysis show that both stresses and displacements are acceptable for the TFC system, and that sufficient margin is available. In addition, loads on some of the major components can be extracted: maximum forces in the TFC supports, and force distribution on the base of the JT-60SA tokamak.



*Figure 1: Model of 9 Toroidal Field Coils for seismic analyses.*