

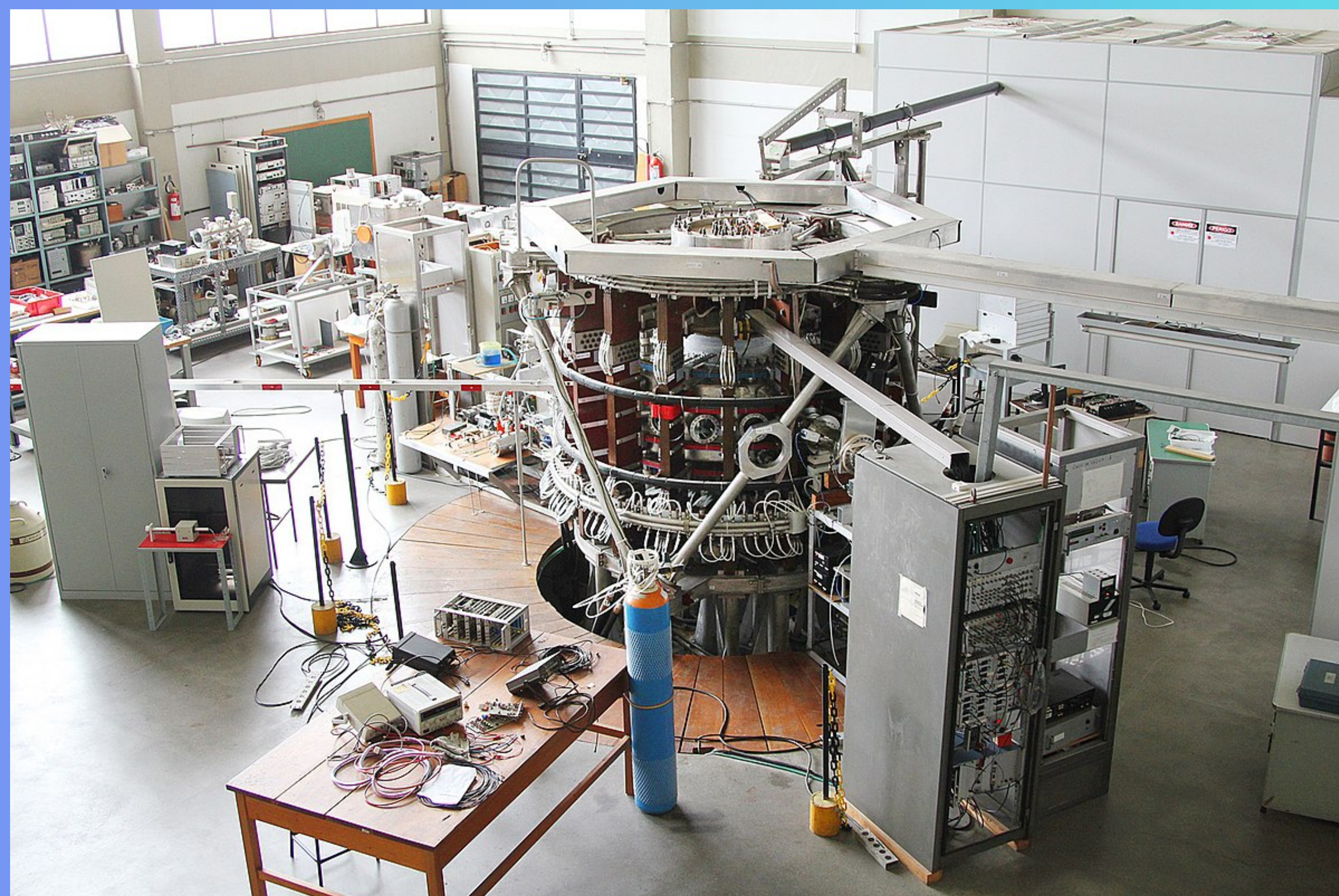


Temporal Evolution of Spacial Distribution of Hydrogen at TCABR -UPGRADE

João Vitor Araya Kobayashi de Sousa
IF-USP - Contact: jvaks_345@usp.br

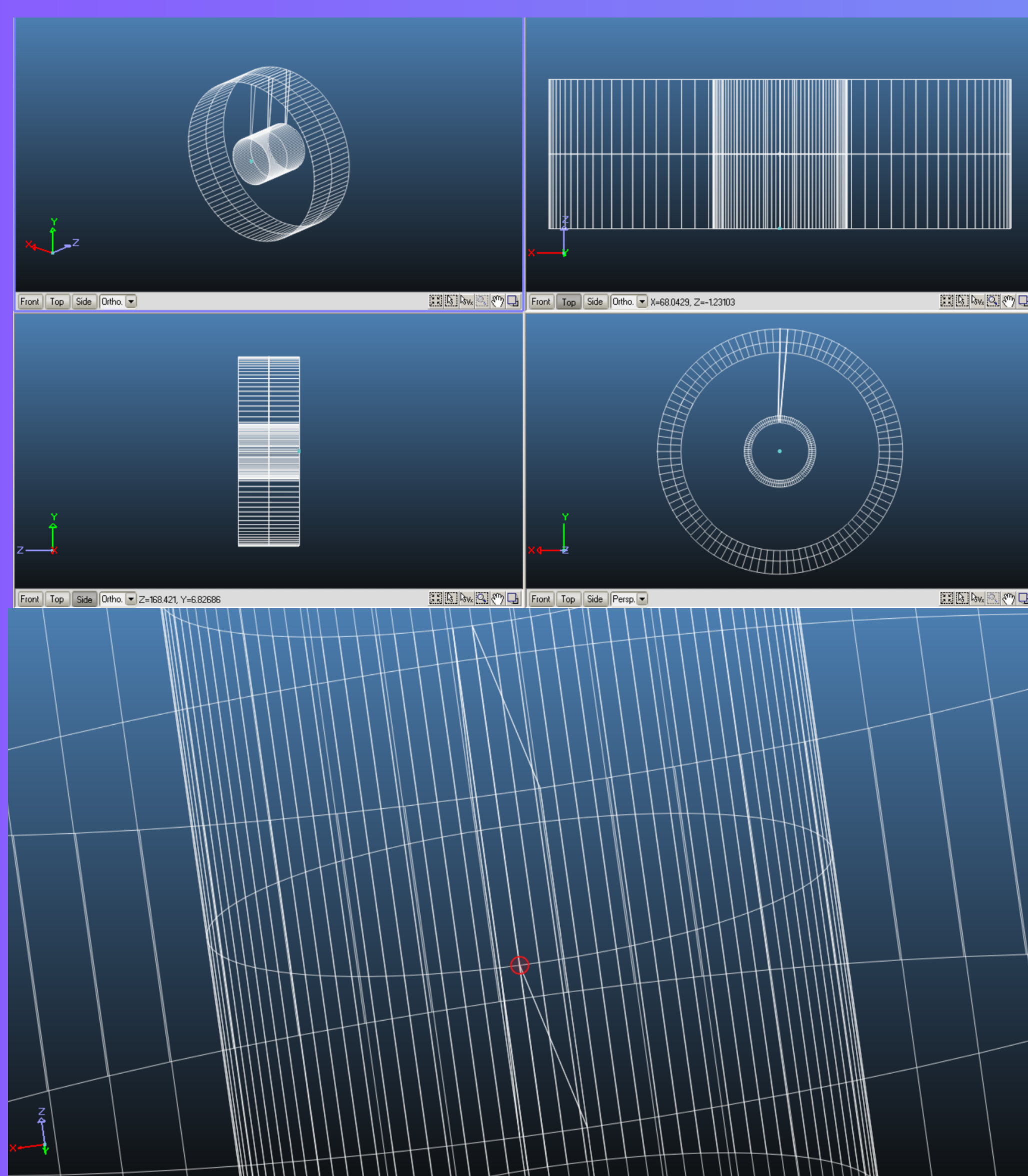
The TCABR UPGRADE

Originally, the Tokamak à Chauffage Alfvén Brésilien (TCABR) was used to study plasma heating and current drive through the excitation of Alfvén waves using radiofrequency antennas installed inside the its vacuum chamber. However, after about three decades of research in this topic, the team of researchers have decided for a major upgrade of the TCABR main systems to enlarge the range of tokamak plasma fusion phenomena that can be investigated. This upgrade will make TCABR able to create a controlled environment where the impact of resonant magnetic perturbation (RMP) fields on edge localized modes (ELMs) can be studied with a large variety of plasma scenarios, RMP coil geometries and RMP field spectrum.



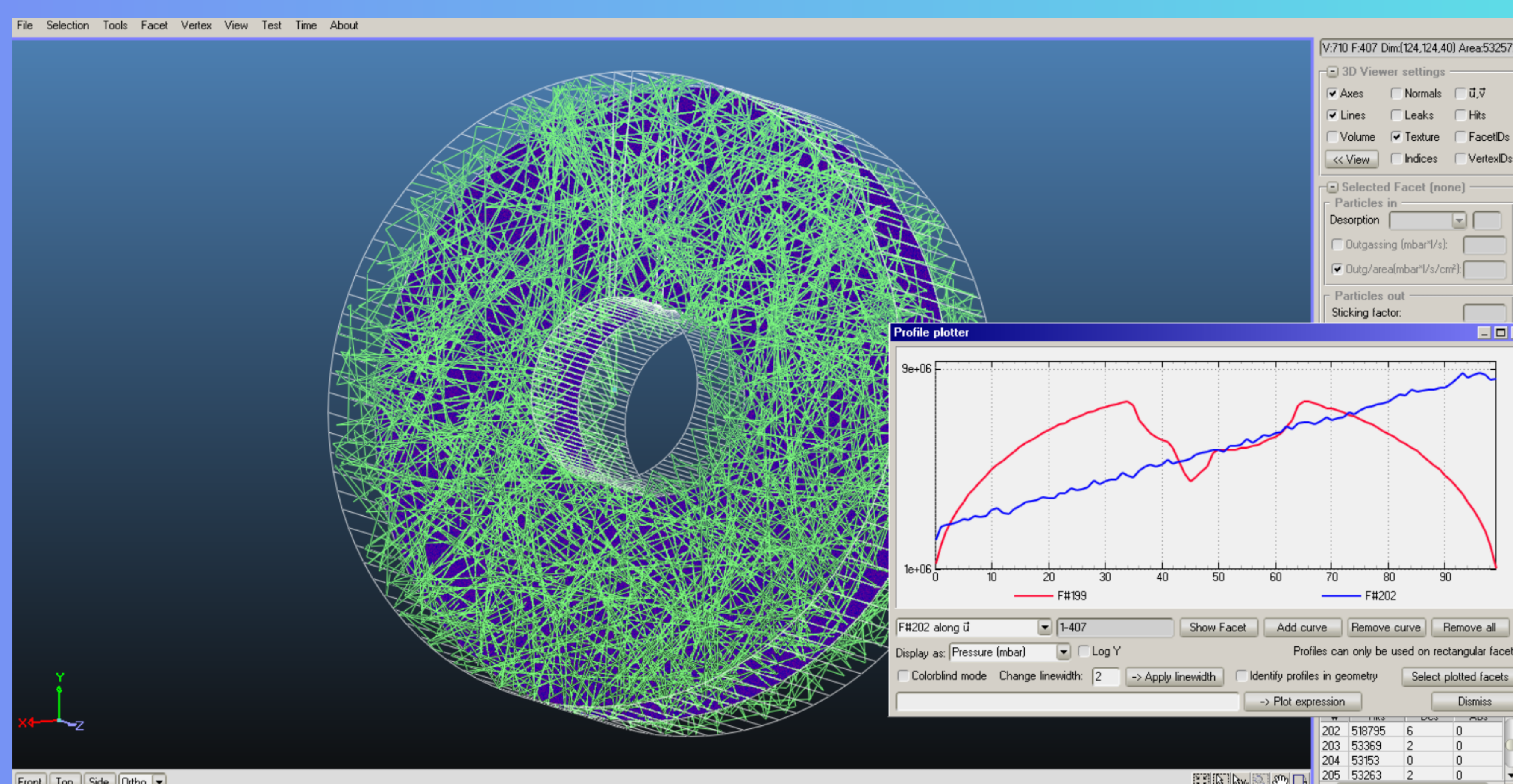
Studying The Vacuum Behavior is Crucial!

My project addresses a fundamental question: How does the spatial distribution of hydrogen pressure within the vacuum chamber evolve over time? Understanding this pressure is essential for contemplating the engineering of the TCABR-UPGRADE construction.



How can we simulate it?

MolFlow Software is the best choice for accurately studying the temporal evolution of the spatial distribution of hydrogen at TCABR-UPGRADE! Using the Monte Carlo Method to analyze the software's data would facilitate understanding what should be improved in the machine's geometry and identify any issues that need to be addressed.



Special Thanks to:

Professor Gustavo Paganini Canal
Professor Francisco Tadeu Degasperri
Professor Juan Iraburu Elizondo
The INFERI organization