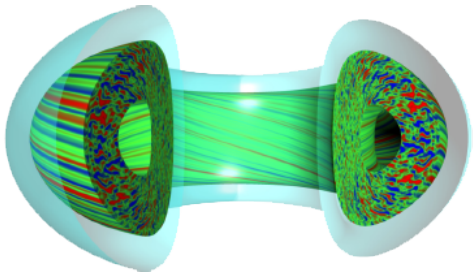

Contribution ID: **23** Type: **Regular Oral**

BAYESIAN PROBABILISTIC DATA ANALYSIS PLATFORM R&D ON HL-2A

Tuesday, 30 November 2021 14:30 (15 minutes)

Magnetic confinement fusion experiments generate large quantities of complex data. At a basic level, the data reflects the state of the machine and plasma, enabling a safe and reliable operation of the device, i.e. well within the design limits of the machine and compatible with the scientific goals of the experiment. Depending on the requirements, different analysis techniques are needed to extract as much useful information as possible from the raw data. Bayesian inference is used in many scientific areas as a conceptually well-founded data analysis framework. On HL-2A tokamak, a Bayesian probability theory-based data analysis platform has been initiatively developed, which applied on electron temperature and density profiles inference by using a set of diagnostic systems, including electron cyclotron emission, Thomson scattering, reflectometry and interferometry. In this paper, we will give a brief introduction of recent progress of data analysis platform R&D. The first integrated data analysis application on HL-2A experiment will also be discussed.

Country or International Organisation

China

Affiliation

Southwestern Institute of Physics

Primary authors: WANG, Tianbo (Southwestern Institute of Physics); Mr YANG, Yonghao (Sun Yat-sen University); Prof. WANG, Zhibin (Sun Yat-sen University); Mr WU, Hao (Ghent University); Dr YANG, Zengchen (Southwestern Institute of Physics); Mr GUO, Wenping (Southwestern Institute of Physics)

Presenter: WANG, Tianbo (Southwestern Institute of Physics)

Session Classification: Tuesday 30 Nov

Track Classification: Applications of probabilistic inference and statistics