

Virtual-KSTAR and Potential AI/ML Applications in the Digital Twin Platform – Chanyoung Lee

Motivations

- The transition from present-day tokamaks to DEMO reactors will pose great scientific and technological challenges.
- As a way to overcome those challenges, we have launched the development of the virtual-KSTAR, which is based on digital twin technology.

Results

- By defining some key technologies for fusion digital twin, we successfully developed virtual-KSTAR, which encompasses real-time monitoring and simulation workflows.

Challenges

- Some challenges remain, in terms of real-time simulation and synthetic diagnostics. We outlook AI/ML techniques as the primary breakthrough for those challenges.

