



Contribution ID: 71

Type: **Oral**

## **Oral\_16: Diagnostic Needs for Fusion DEMO and Power Plants - A Panel Discussion**

*Wednesday, 8 September 2021 16:00 (30 minutes)*

Diagnostics have been a key element in fusion research development, and often served as an essential component in understanding the underlying science of fusion-grade plasmas. However, as the performance of fusion devices approaches and reaches ignition, new challenges arise from environmental conditions such as radiation (e.g. neutrons, gammas), long term exposures to front-end components (e.g. mirrors, actuators) and tight requirements for stability (e.g. calibration). These have generated intense R&D and engineering work in ITER diagnostics for example. As the design of fusion DEMO and Power Plants is now progressing, additional challenges arise from long pulse operations and difficult maintenance (e.g. reliability), limited access (ports), high temperature operation and complex control and protection schemes. This panel discussion aims at sharing these challenges, how they can be met, and what developments should be undertaken to ensure success of these devices. Views from the panel members and attending conference participants are expected to be an important part of this discussion.

This material is based upon work supported by the U.S. Department of Energy, under Awards DE-FC02-04ER54698.

**Primary author:** BOIVIN, Rejean (General Atomics)

**Presenter:** BOIVIN, Rejean (General Atomics)