Database Techniques for Information Storage and Retrieval

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Introduction

The director and a member of the local organising committee, Mr. Rahad Pujara, then spoke. In an ancient Indian ritual, Candles were lit to wish the meeting success. After that all attendees of the conference agreed that the ceremony must have been made possible by the excellent work of the scientific and the event's local organising group reported great success. The first two technical sessions were devoted to Plasma Control. 10 oral contributions and 27 posters were presented in that session.

Description

The keynote presentation was given by the director of IPR (Bora) who outlines the Fusion Research Plan for India. Contributions from EAST, giving and overview of the enhancements of the EAST control capabilities and a new controller design for the vertical stability system, were followed by the control presentation from ITER, which focused on the implementation concepts for configuration, supervision and the real-time control system of ITER. Recent advancements in plasma management at IPR were presented in a series of lectures, with a focus on managing runaway electrons at, managing and running the high-power gyrotrons at SST-, and the data collecting and central control system for SST. There were also updates on KSTAR's progress (Hahn), talks on the usage of EPICS at HL-2A and discussions on the use of PCI Express and FPGAs for high-speed control applications. The significance of Plasma Control in current fusion research was demonstrated by posters provided by nearly all of the groups in attendance.

With 12 oral presentations and 26 posters, this subject is the second major emphasis of the conference series. Major upgrades are being prepared and implemented on numerous machines, such as the NSTXU, which is getting ready to start up as reported by some ecperts, and the LHD, which is being ready for D-D tests. The ITER project is currently in the construction phase, and several presentations regarding the plant system I&C were delivered from the perspectives of both the domestic agencies and the ITER central team. Additionally, some talks on general process automation pertinent to fusion facilities and machine control modelling were given. 30 posters and 15 oral presentations were presented during this session.

The session's overall finding was that rather than focusing on specific island developments, the community's development paradigm appears to have turned toward making use of what is already in place and providing what is needed. While the use of open source products is expanding, industry collaboration is also increasingly widespread. The session included both talks detailing new or significantly enhanced DAQ systems utilised at various sites as well as presentations from industry on their innovations relevant for the fusion community (Agilent and National Instruments). Cryogenics at SST, real-time density measurements at EAST, and real-time equilibrium reconstruction

at ASDEX-Upgrade were some of these. A. Winter/Fusion Engineering and Design 112 (2016) 656–659 was another area of focus. The key software applications like archives that are now being utilised or developed. Three oral presentations on the usage of databases for various purposes were included in this session.

The technique to configuration management used by ASDEX-Upgrade was presented in a presentation. In a presentation on a new Data Catalog Project that seeks to enhance the way metadata is managed, Stillerman underlined the critical role that metadata plays in the categorization of experimental data. Three oral presentations were made during this smaller session, which was once more. For tokamaks, disruption prediction is a hot topic, and the APODIS project's success using genetic algorithms was discussed. According to Huang, the EAST plasma reconstruction based on GPUs is a field that can profit from the adoption of parallelization techniques [1-5].

Conclusion

The Metadata Provenance Ontology project, which attempts to standardise and enhance the workflows used to assure data provenance, was the subject of the final presentation. With only 5 oral presentations, this session is typically the smallest. Both the state of the remote experimentation centre for ITER and the development of the remote exploitation and operation for EAST (Yuan, Sun) were reported (Nakanishi). The Czech Republic's GOLEM tokamak was transformed into a remote access device. The submission of pulses through the Internet allows for both camera and measurement-based observation of the execution of the actual shots. Live demonstrations of this were made during the lecture.

Acknowledgement

Conflict of Interest

The Author declares there is no conflict of interest associated with this manuscript.

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