Status and Prospects of Integrated Data Analysis for Present and Future Fusion Devices

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For machine control and safety as well as physics studies, present and future fusion devices have to analyse a huge amount of measurements coming from many redundant and complementary diagnostics. Integrated Data Analysis (IDA) in the framework of Bayesian probability theory provides a concept to analyse a coherent combination of measured data from heterogeneous diagnostics including their statistical and systematic uncertainties and to combine them with modelling information.

Based on more than 20 years of experience in applying IDA at various fusion devices, a generic IDA code package was recently developed to provide a modular and flexible basic python code to be applied to present and next generation fusion devices. A summary of the IDA ingredients, the status of the newly developed IDA platform, the linkage with the ITER:IMAS data base and recent applications will be presented.

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