

Fault Analysis Methods and their Impact on the Systems Reliability and Beam Availability of Accelerator Driven Facilities

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Current and future accelerator driven facilities are highly complex and related beam operation can be fairly critical due to an increased beam energy, intensity, current or beam power. It becomes more and more important to shorten restore times after a beam stop or beam trip has happened and automatize the restart even, but also to avoid beam stops at all. However before restarting beam operation after a fault happened, the original cause has to be understood and preferably it should be mitigated; at least the likelihood of it to happen soon again shall be reduced to a certain level. On the other hand side it is possible to predict certain types of failures by investigating related alarms and trends. Early fault detection and prediction reduces directly downtime but also the workload outside normal working hours because upcoming failures can be repaired (even in a planned way) while the machine is still operating.

This presentation will discuss the impact of different fault analysis methods as well as the quality of the related data sets, on systems reliability and beam/machine availability.