



Contribution ID: 18

Type: **not specified**

## General Machine Timing @ FAIR: Status

*Tuesday 3 March 2015 14:00 (20 minutes)*

The FAIR facility involves a long chain of accelerators which need to be tightly synchronized. This is achieved by the General Machine Timing (GMT) system, a distributed event generation system based on the notion of time. Time synchronization is achieved by using White Rabbit (WR), a fully deterministic Ethernet-based field bus for clock transfer and synchronization. The key components of the GMT are a so-called Data Master (DM) that schedules actions by broadcasting messages, a WR network and Timing Receiver (TR) nodes executing machine relevant actions on time.

The primary tasks of the timing system are the following.

- Time-Synchronization of ~2000 - 3000 nodes with sub-ns accuracy over fiber lengths of up to 2 km.
- Distribution of TAI counters with ns accuracy.
- Generation of timing events for synchronization of equipment.
- Provide infrastructure for common services of the accelerator (Post Mortem, Interlock,...) and FAIR experiments (time stamps, ...).

**Primary author:** BECK, Dietrich (GSI)

**Presenter:** BECK, Dietrich (GSI)

**Session Classification:** Dienstag-3: Elektronik für Beschleuniger II

**Track Classification:** Vortrag