

# Alignment data streams for the ATLAS Inner Detector

*Tuesday 24 March 2009 17:10 (20 minutes)*

The ATLAS experiment uses a complex trigger strategy to be able to achieve the necessary Event Filter rate output, making possible to optimize the storage and processing needs of these data. These needs are described in the ATLAS Computing Model, which embraces Grid concepts. The output coming from the Event Filter will consist of three main streams: a primary stream, the express stream and the calibration stream. The calibration stream will be transferred to the Tier-0 facilities which will allow the prompt reconstruction of this stream with a minimum latency of 8 hours, producing calibration constants of sufficient quality to permit a first-pass processing. An independent calibration stream is developed and tested, which selects tracks at the trigger level 2 after the reconstruction. The stream is composed of raw data, in byte-stream format, and contains information of limited parts of the detector, in particular only the hit information of the selected tracks. This leads to a significantly improved bandwidth usage and storage capability. The stream will be used to derive and update the calibration and alignment constants if necessary every 24h. Processing is done using specialized algorithms running in Athena framework in dedicated Tier-0 resources, and the alignment constants will be stored

and distributed using the COOL conditions database infrastructure. The work is addressing in particular the alignment requirements, the needs for track and hit selection, timing and bandwidth issues.

**Author:** SCHIECK, Jochen (Max-Planck-Institut für Physik)

**Co-authors:** SFYRLA, Anna (Univ. Illinois at Urbana-Champaign); PINTO, Belmiro (Universidade de Lisboa); ESCOBAR, Carlos (IFIC); IGONKINA, Olga (NIKHEF); MARTI I GARCIA, Salvador (IFIC)

**Presenter:** PINTO, Belmiro (Universidade de Lisboa)

**Session Classification:** Online Computing

**Track Classification:** Online Computing