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Time Synchronization with White Rabbit - Experience from Tunka-HiSCORE

Tuesday 4 August 2015 16:00 (1 hour)

Upcoming Gamma-Ray and Cosmic-Ray experiments require relative time calibration of all detector components with (sub-)nanosecond precision.

White Rabbit, an established technology for time- and frequency transfer, can be applied here.

We describe a White Rabbit (WR) based design for Tunka-HiSCORE - a timing array for Gamma-Ray astronomy now under construction.

Sub-nsec synchronization results from cosmic ray data, in-situ calibrations and laboratory tests taken over several years are presented. A WR-based online array-trigger and shower reconstruction concept is outlined, aiming at improved physics sensitivity.

We conclude that excellent field performance, design flexibility, cost-efficiency and its open source approach make WhiteRabbit advantageous over custom-made solutions for large, long-term projects.

Collaboration

– not specified –

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Author: Dr WISCHNEWSKI, Ralf (DESY)

Co-authors: PORELLI, Andrea (DESY); BRUECKNER, Martin (PSI Villigen); Dr TLUCZYKONT, Martin (University Hamburg); EPIMAKHOV, Sergey (Hamburg University)

Presenter: Dr WISCHNEWSKI, Ralf (DESY)

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