UNIVERSITÄT SALZBURG

Towards a High-Performance Readout System for the Upgrade of the CERN ALICE Inner Tracking System

Der Fachbereich Computerwissenschaften
der Paris-Lodron-Universität Salzburg

lädt am

Dienstag, 13. November 2018 um 11:00 Uhr

im Seminarraum T04 des Fachbereichs Computerwissenschaften,
Jakob-Haringer-Straße 2,

zum
Gastvortrag
von
Matthias Bonora

ALICE collaboration

ein.

Univ.-Prof. Dr. Christoph Kirsch
Host

With the next long shutdown, the ALICE experiment at CERN will upgrade its Inner Tracking System Detector. The new design has a resolution of 12.5 billion pixels at a detection surface of 10m2, with a readout rate in the order of 50 kHz. Over 24000 sensors will be installed, connected via copper links for readout. 192 readout boards will collect sensor data, pack it, and forward it off-detector, with a throughput of up to 9.6 Gb/s per board. This first readout stage will be placed inside a radiation environment, where Single Event Upsets can corrupt the data and configuration of the onboard processing FPGA. This talk presents the challenges faced while developing the readout for this system and shows our results in implementing a reliable readout path from the sensor to the counting room.

Matthias Bonora, finished his master's degree for Embedded Systems Design in 2015 at the FH Oberösterreich, Campus Hagenberg. Worked from October 2015 to 2018 at the European Organization for Nuclear Research (CERN) as part of a Doctoral Student Programme. As part of the ALICE experiment, he worked on the upgrade of the Inner Tracking System Detector, mainly the sensor readout and readout electronics development.