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# The NA62 First Level Trigger.

*Friday, April 21, 2017 5:00 PM (1 hour)*

The NA62 experiment is designed to measure the ultra-rare decay K+ ⟶ π+νν branching ratio. The Standard Model prediction is 8.4 x 10-11, requiring an high intensity beam. The intense flux of particles needs a high-performance trigger and data acquisition system, ensuring a high acceptance for the signal events together with a high rejection of the decays accounting for most of the rate. The L0 Trigger Processor (L0TP) is the lowest level system of the trigger chain. It is hardware implemented using programmable logic. It is fully digital, based on standard gigabit ethernet communication between detectors and L0TP Board. The L0TP Board is a commercial development board provided by Terasic. Data generated by different detectors are sent asynchronously using the UDP protocol to the L0TP during the entire beam spill period (~5 seconds). The L0TP realigns in time the information coming from different sources looking for patterns characteristic of the event as energy, multiplicity, position of hits. The selection of good events is provided by an associative memory based on preset masks. The input rate is higher than 10 MHz for each detector,reduced to a maximum output rate of 1 MHz. L0TP should guarantee a maximum latency of 1 ms. The final version of the system has been used in the NA62 2016 data taking. A review of the trigger performance will be presented.

**Primary author:** SOLDI, Dario (TO)

**Co-author:** CHIOZZI, Stefano (FE)

**Presenter:** SOLDI, Dario (TO)

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