

Self-adaptive shaper for amplitude radiation spectrometer

Friday, 14 October 2016 15:00 (15)

A structure of the analog amplitude shaper for high energy physics instrumentation is presented. The shaper has a function of self-adaption of the shaping time based on the channel occupancy. The spectrometer consists of the filter with maximized signal-to-noise ratio (slow shaper), high-frequency band-pass filter (fast shaper), amplitude and time discriminators, peak detector and signal overlap inspector. Based on the channel occupancy the output of either fast or slow shaper is supplied via the 2-channel multiplexer. At the highest occupancies the inspector fixes the overlap and the signal from the fast shaper is switched to the multiplexer output. In case of overlap absence one can use the output of the slow shaper with higher amplitude resolution. The estimation of the maximum channel hit rate and amplitude resolution and the structure approbation is considered in the paper.

Primary author(s) : Mr. EVGENY, Malankin (NRNU MEPHI)

Co-author(s) : Dr. ATKIN, Eduard (National Research Nuclear University MEPhI); Dr. IVANOV, Vladimir (PNPI); Prof. SAMSONOV, Vladimir (NRNU MEPhI)

Presenter(s) : Mr. EVGENY, Malankin (NRNU MEPHI)

Session Classification : Methods of experimental physics - parallel VI

Track Classification : Methods of experimental physics