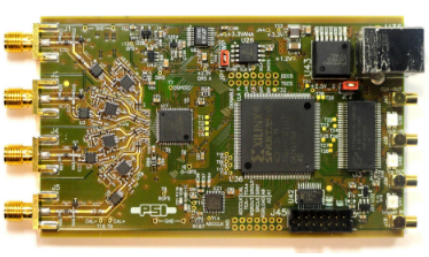

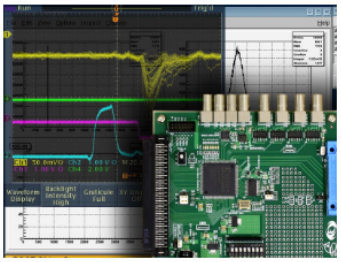

Contribution ID: **6** Type: **not specified**

Waveform digitising and signal processing

Data acquisition in nuclear and particle physics requires the precise measurement of signal amplitudes and time from detectors. This lecture first gives an overview of traditional methods using signal shaping, various discriminators and analog-to-digital converters (ADC) and time-to-digital converters (TDC). It then moves over to high speed waveform digitizing, a field which recently made tremendous progress due to faster ADCs and so-called switched-capacitor array integrated circuits. These novel devices allow the direct digitisation of detectors with several gigasamples per second (GSPS) and resolutions up to 12 bits. The lecture introduces various signal processing methods to extract the signal amplitude and time from detector signals in the presence of noise.

Presenter: RITT, Stefan (Paul Scherrer Institut (CH))

Session Classification: Lecture