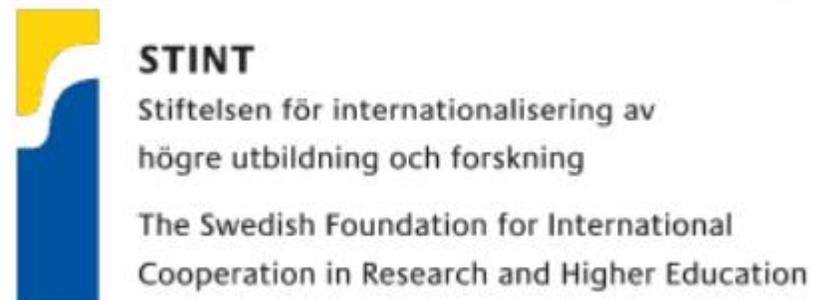


Protótipos e Sistema de Leitura

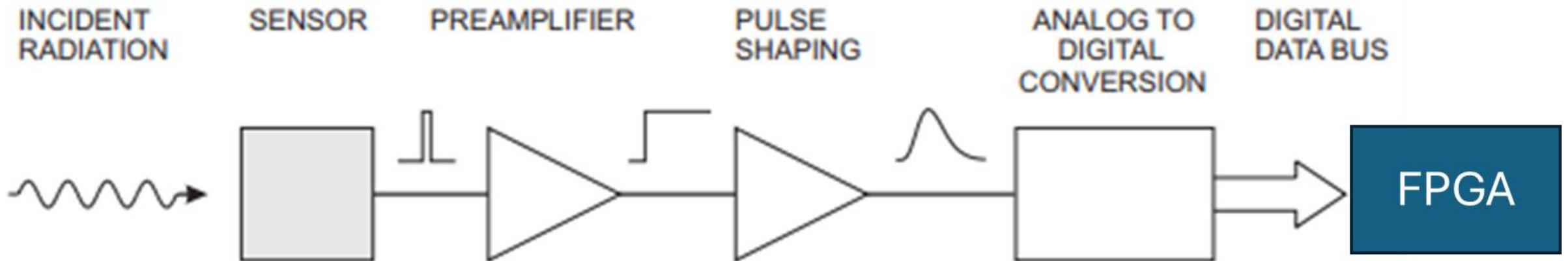
Segundo STINT Workshop NNBAR Suécia-Brasil

Tiago Quirino

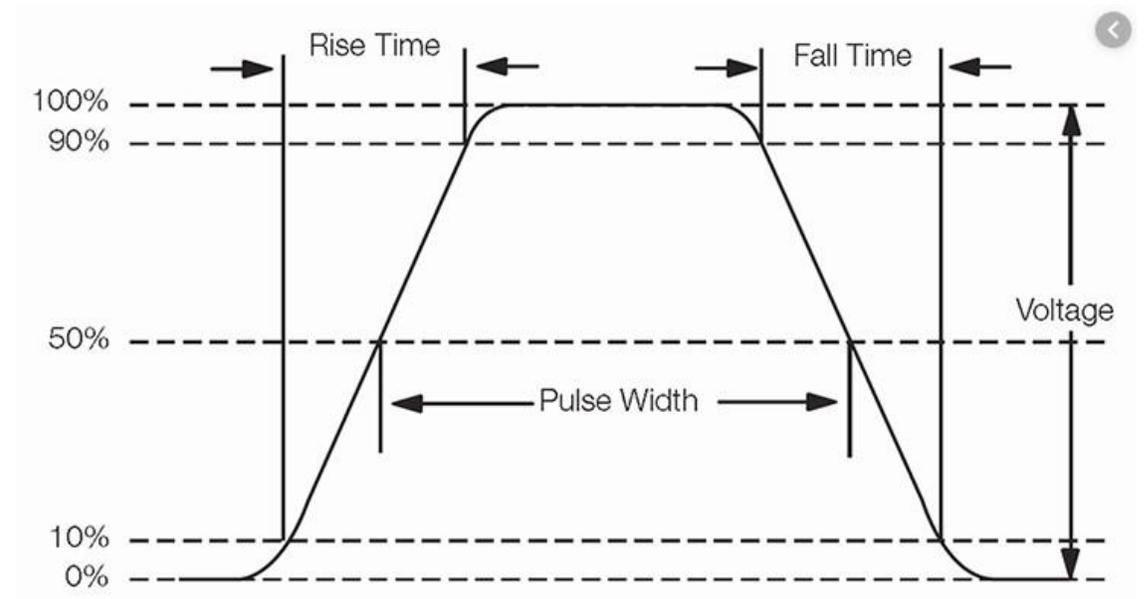
30/04/2024



Formação de Pulsos Elétricos em Detectores

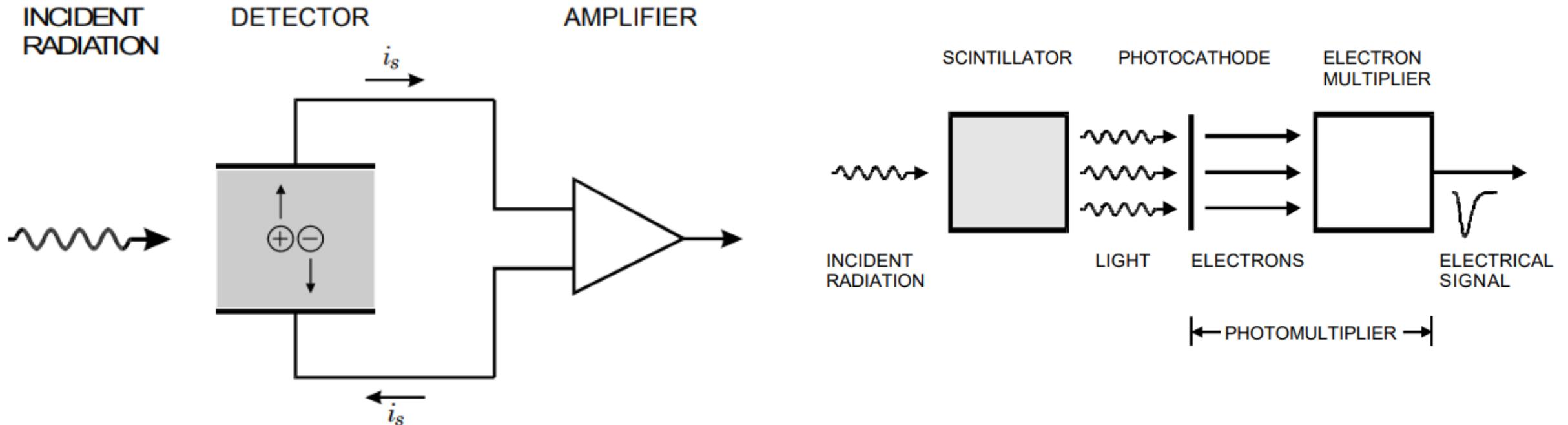


Durações Típicas dos Pulsos

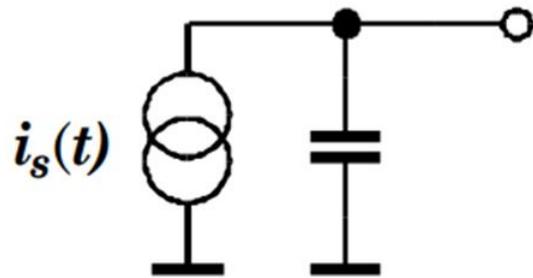


Thin silicon detector (10 ... 300 μm thick):	100 ps – 30 ns
Thick ($\sim\text{cm}$) Si or Ge detector:	1 – 10 μs
Proportional chamber (gas):	10 ns – 10 μs
Gas microstrip or microgap chamber:	10 – 50 ns
Scintillator + PMT/APD:	100 ps – 10 μs

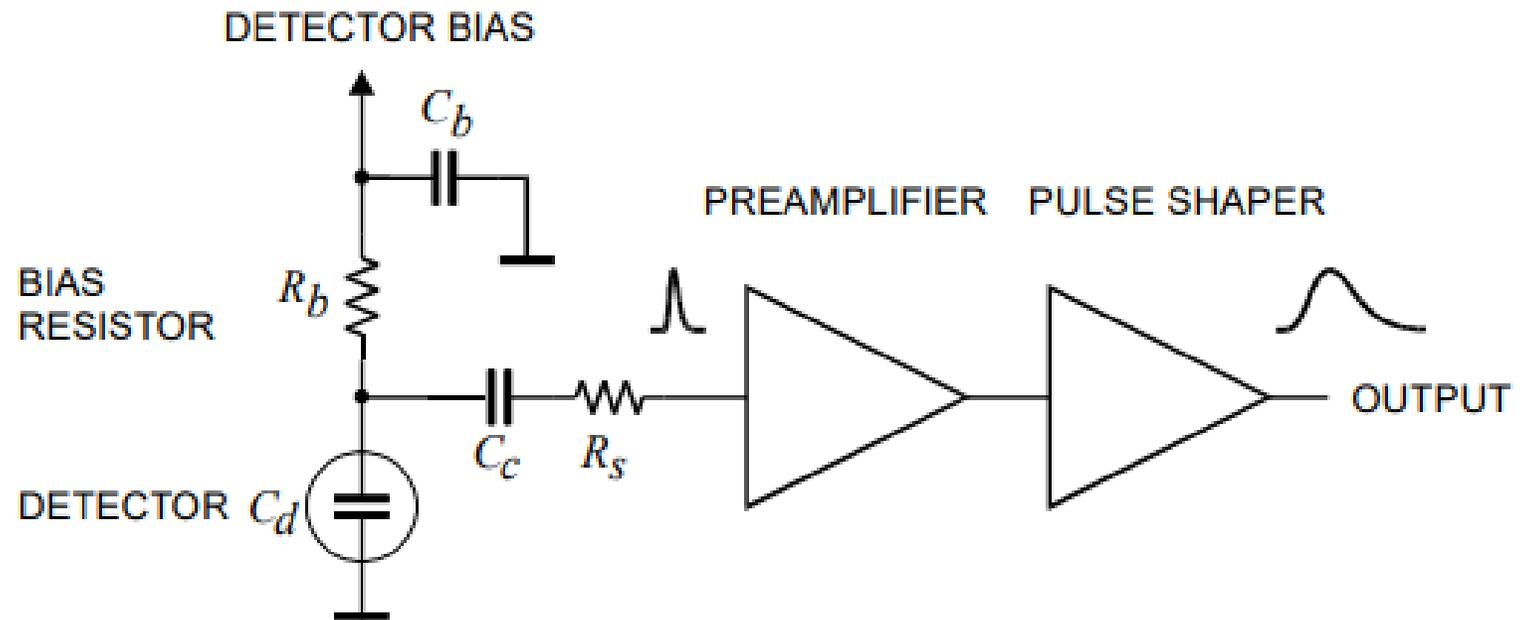
Multiplicação de Cargas

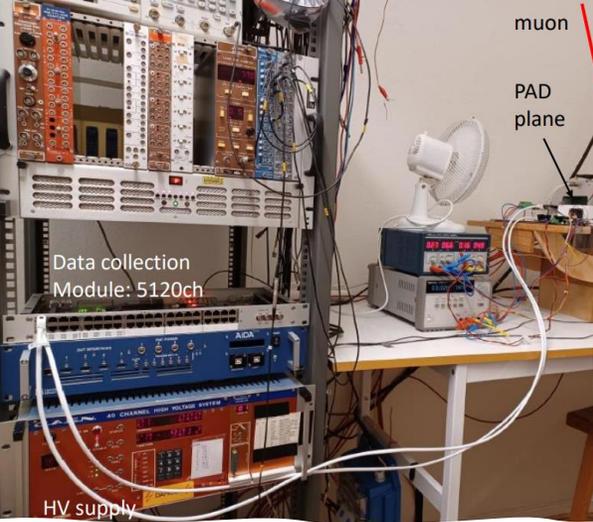


Modelo de detectores

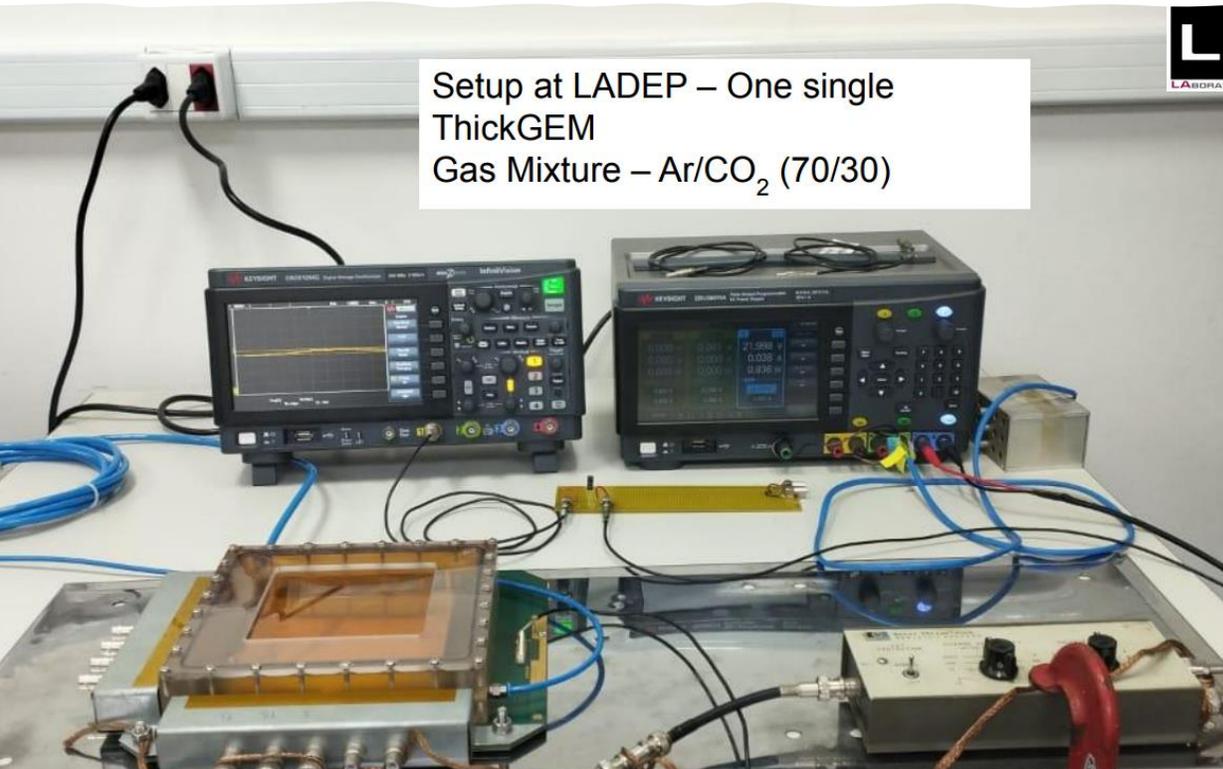


$$E \propto Q_s = \int i_s(t) dt$$

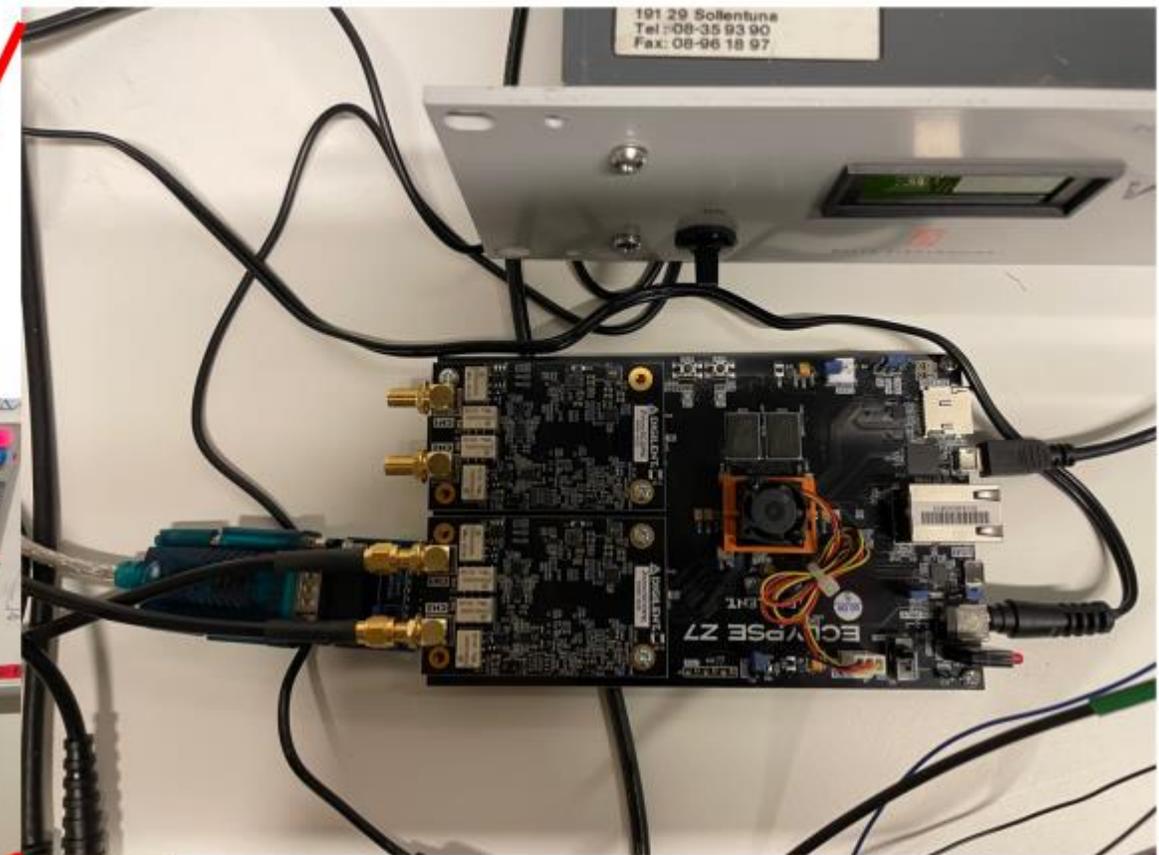
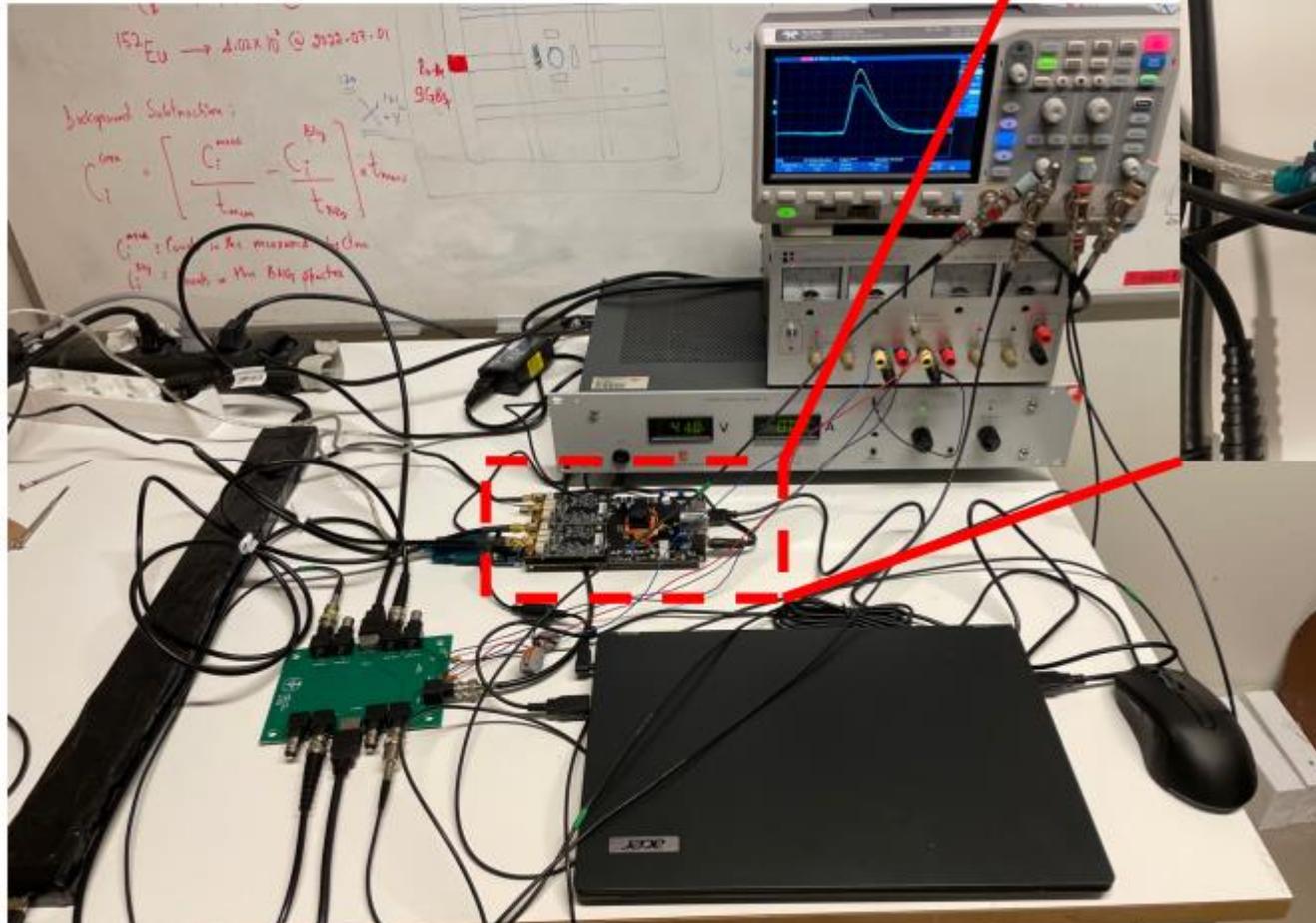




Protótipos

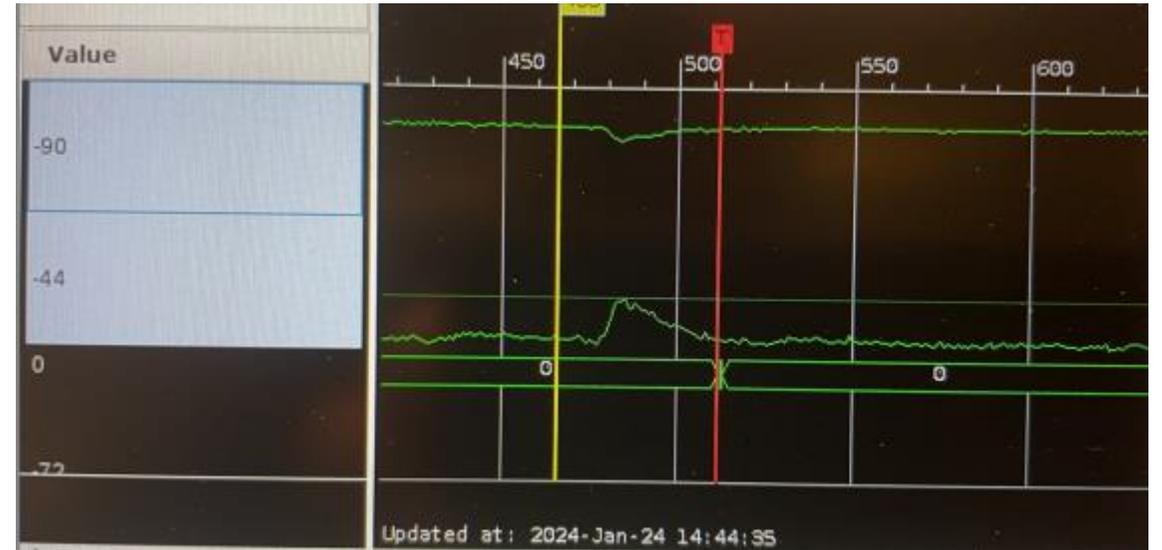
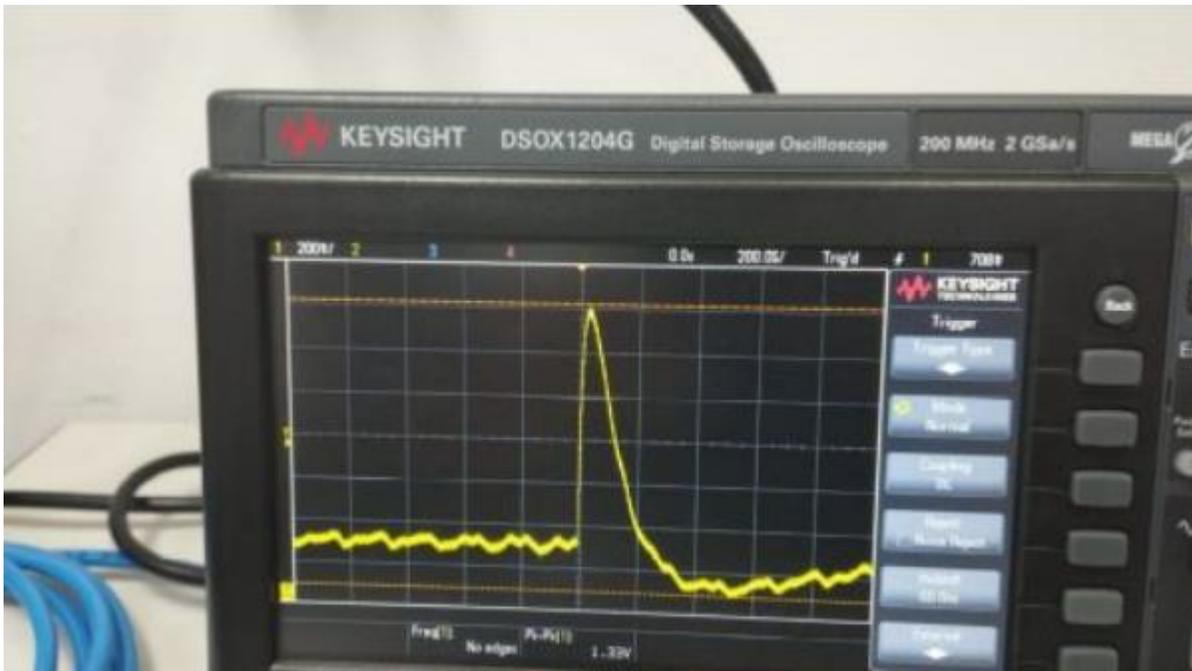


- Estocolmo
- Lund
- Campinas

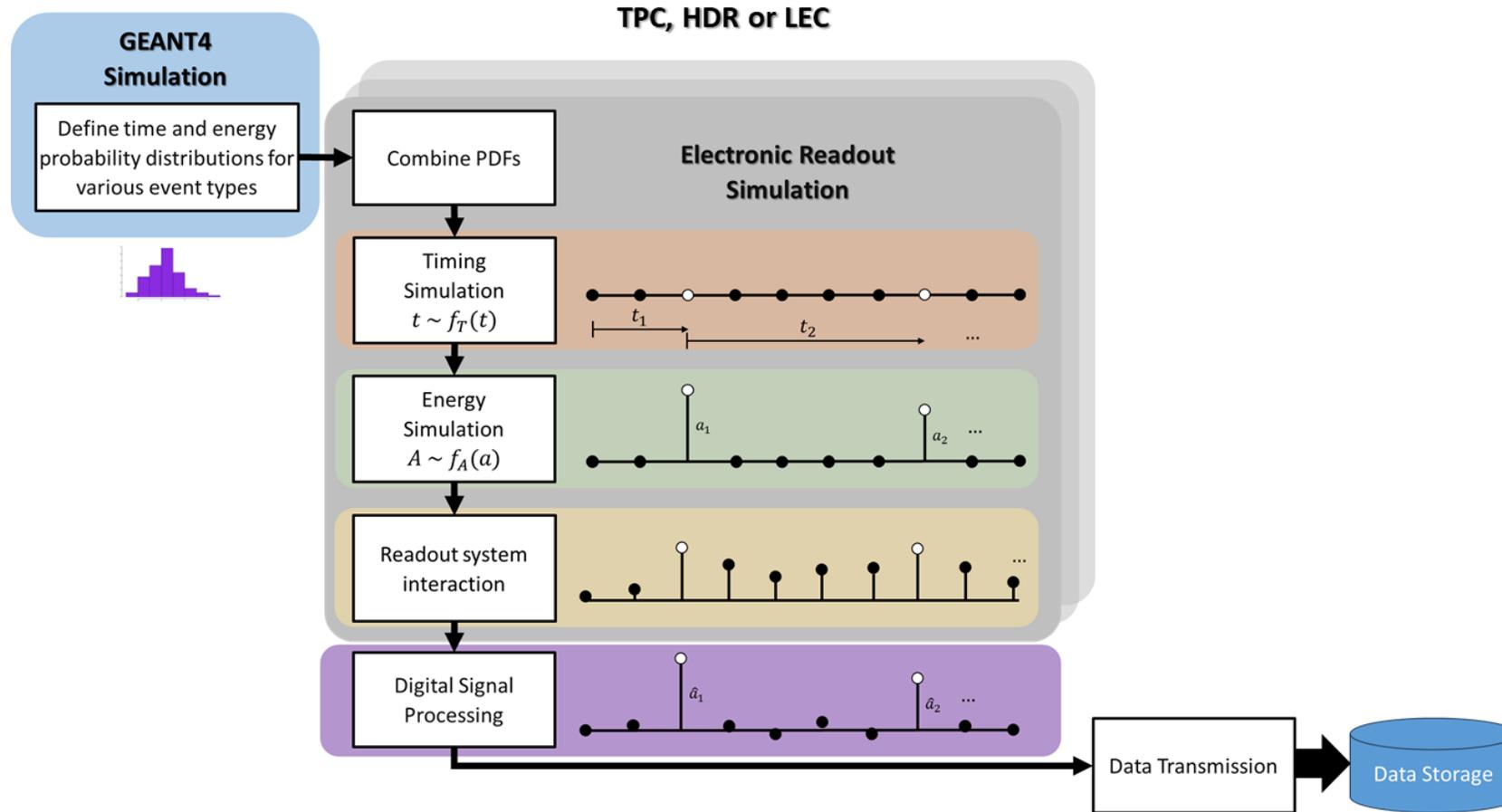


FPGA board: Digilent Eclipse Z7
Two 2-channel ADC mezzanines
Zmod Scope 1410-125 (14 bit)
Serial readout
RS232-USB adapter

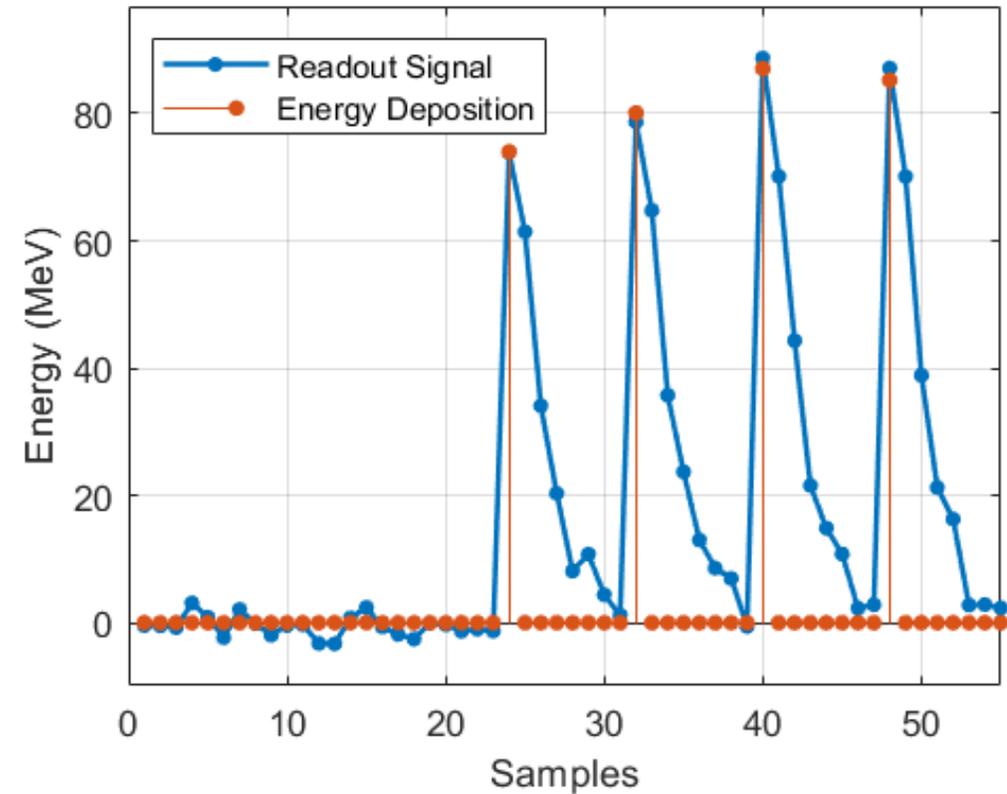
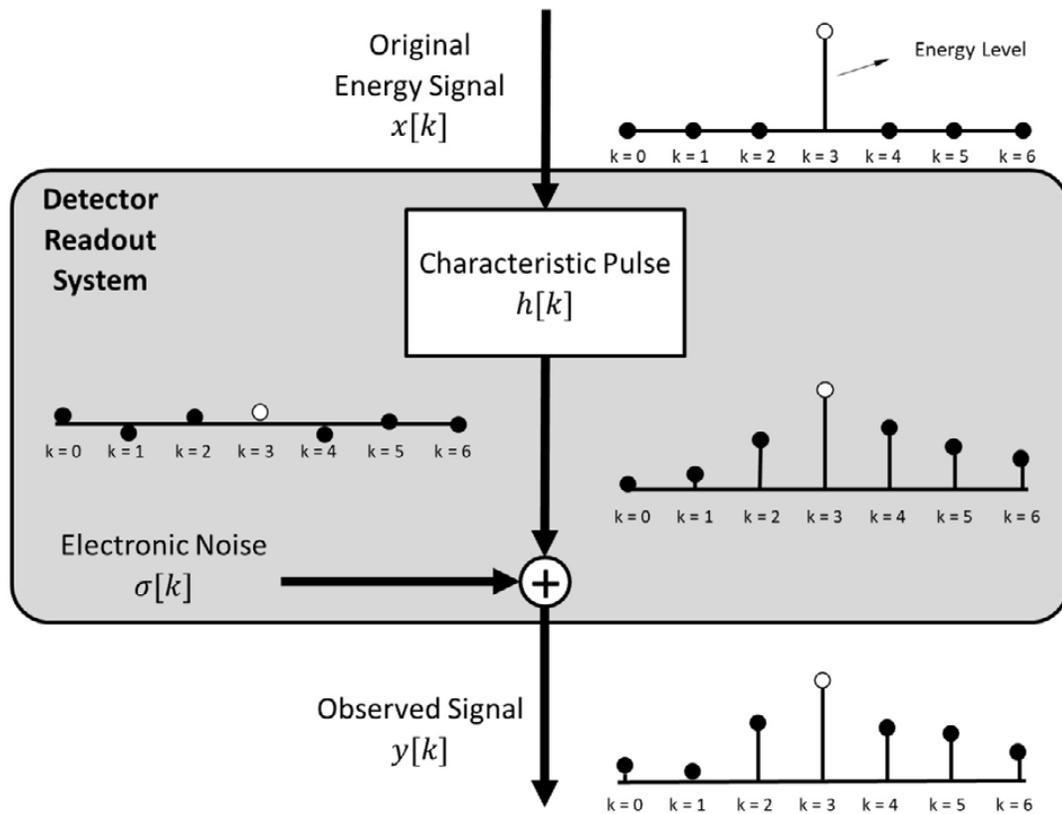




Simulação da Eletrônica



Simulação da Eletrônica



Desenvolvimentos em potencial

Testes de algoritmos de processamento de sinais para recuperação a energia;

Avaliação da taxa de transmissão e aquisição de dados para os detectores do experimento;