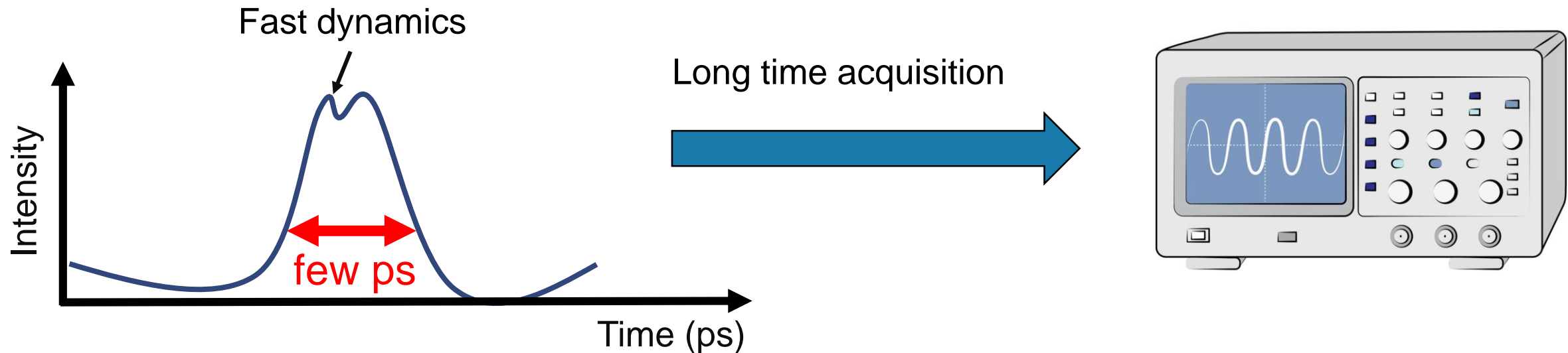


Terahertz Sampling Rates With Photonic Time-Stretch for Electron Beam Diagnostics

11th Workshop on Longitudinal Electron Bunch Diagnostics

Motivation: Realizing Ultra-Fast Measurements

- Study of complex dynamics is crucial for understanding numerous physical processes (e.g. in beam diagnostics, laser dynamics, ...)
- Time scale of dynamics: 10 fs to hundreds of ps
- Long time continuous acquisition (1 s to several hours) required



Commercial High-Bandwidth Digitizers

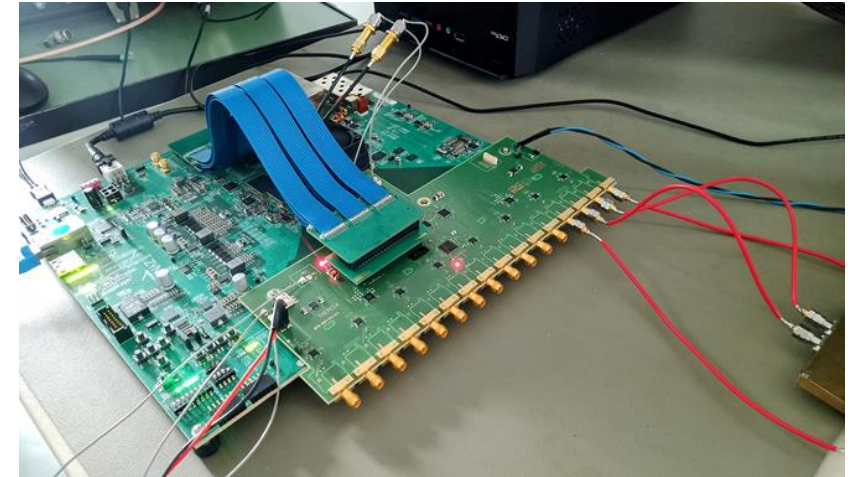
- Expensive
 - Limited internal memory
 - Fast readout interfaces missing
- Not suitable for continuous, long-term acquisition of analog input signals

Novel Digitizer

- Idea:

- Stretch signal to be sampled in time
 - Photonic time-stretch setup
- Sample the signal with high rate
 - High bandwidth sampling board and fast readout card

→ Realizing sampling rates in the range of TS/s



How does it work?

→ Poster presentation :)