



National Research
**Tomsk
State
University**

TSU group

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Composition and activities

Two specialized laboratories

Experimental High Energy Physics Laboratory

Data Analysis in High Energy Physics Laboratory

LHC Experiments

ATLAS, TOTEM, CMS

Areas of expertise

Readout electronics development and testing ([Olesia Kuchinskaia](#), [Vladislav Borsch](#))

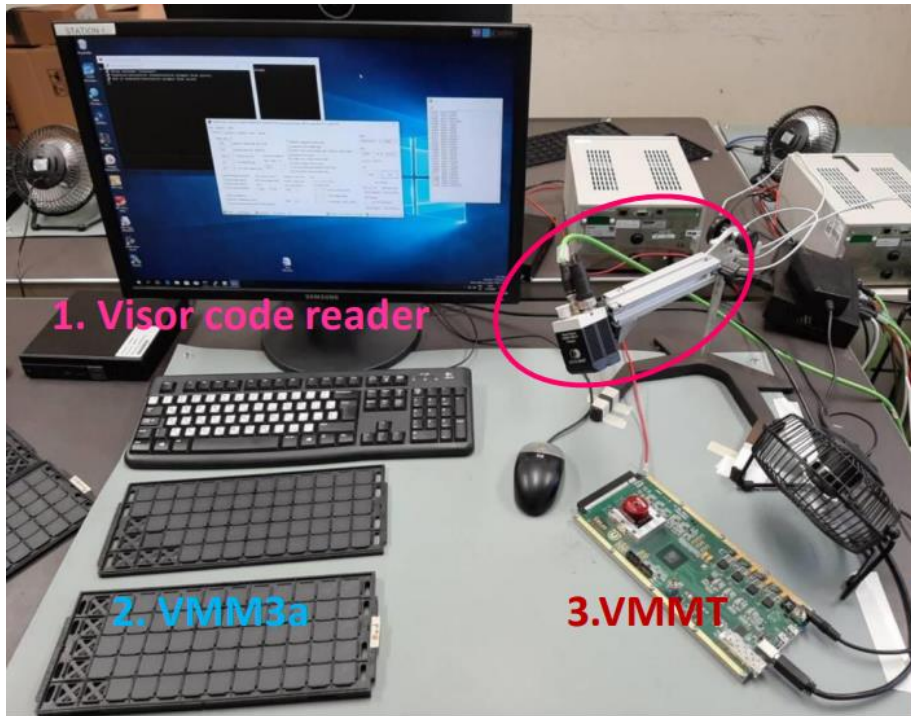
Software development for data processing, storage and data analysis ([Ramdas Makhmanazarov](#))

GEANT4 development and detector simulations ([Vladimir Ivantchenko](#), [Evgueni Tcherniaev](#))

Physics analysis ([Irina Shreyber](#), [Olesia Kuchinskaia](#))



VMM3/3a testing and certification for ATLAS detectors (CERN)



Development and fabrication of the VMM3/3a testing tools

Certification procedure

Test boards VMMT

Automation tools (code reader, etc.)

Firmware and software

Databases

Mass testing and certification of **42,000 VMM3a chips**



New Small Wheels commissioning (ATLAS)



sTGC commissioning

- Connection/assembly of equipment
- Software development
- System testing

NSW commissioning

- Connection/assembly of equipment
- Detector performance monitoring during data acquisition sessions



Embedded systems

FPGA and SoC:

Intel (Altera), Xilinx, Microsemi. VHDL, Verilog/SystemVerilog, UVM, cocotb and etc.

Software:

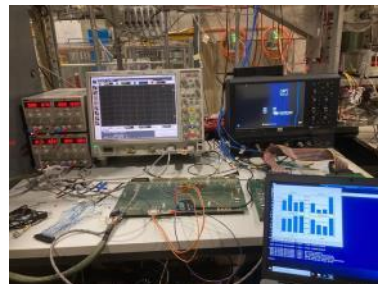
Qt, MS VS, Python, C/C++ (incl. embedded), MATLAB, CERN ROOT and etc.

Equipment:

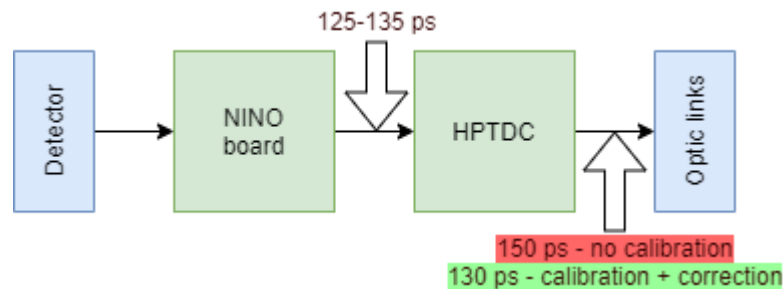
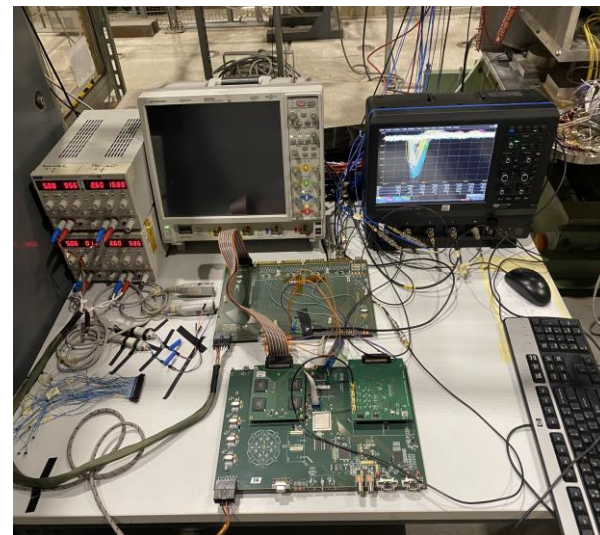
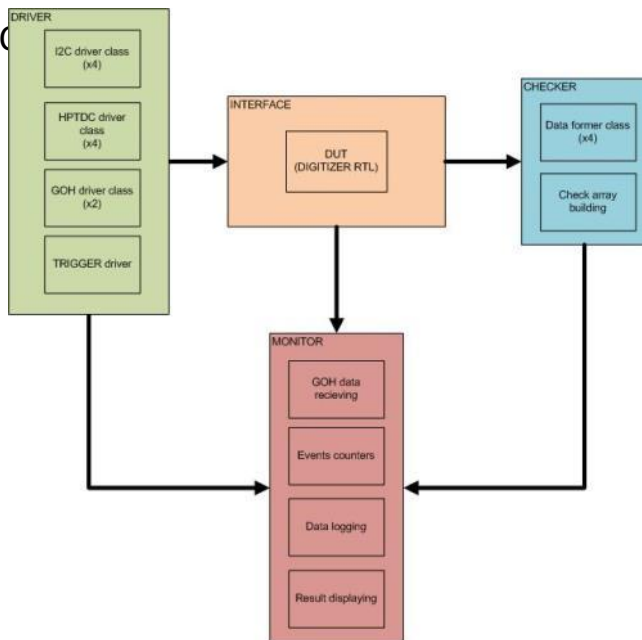
Oscilloscopes, spectrum analyzers, waveform generators and etc.

Interests:

high-performance DSP systems; front-end electronics for HEP; telecommunications.



FPGA and software for Roman Pots timing detectors



Related activities beyond HEP

In collaboration with Tomsk Polytechnic University

Metrological devices for oil and gas industry:

- Spectrometer
- Fractionmeter
- Flowmeter

