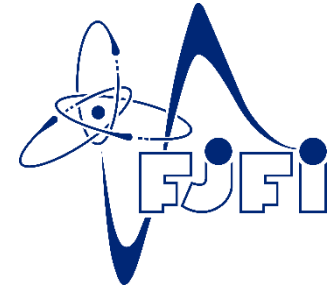


Center of Applied Physics and Advanced
Detection Systems



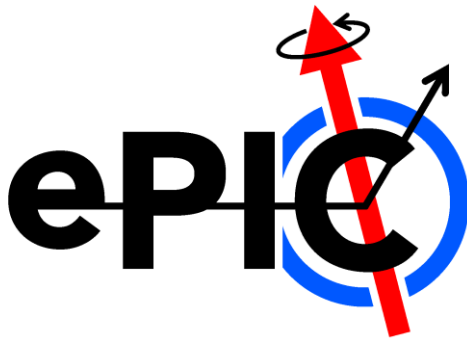
ePIC SVT DSC kickoff meeting:

Planned contribution of the Czech Technical University in Prague to ePIC SVT

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CTU team introduction



Our silicon detector team consists of about 12 people, mostly electronic engineers and students. Main focus of our detector group at CTU Faculty of Nuclear Sciences and Physical Engineering in general is mostly **R&D of silicon based detectors and related activities** (readout HW and SW, detector characterization etc.). We have developed a small range of hybrid and monolithic silicon detectors for applications in dosimetry, imaging and tracking.

Currently used technology:

- X-FAB CMOS 180 nm (Sol)
- TSMC CMOS 65 nm

Participation in many research projects:

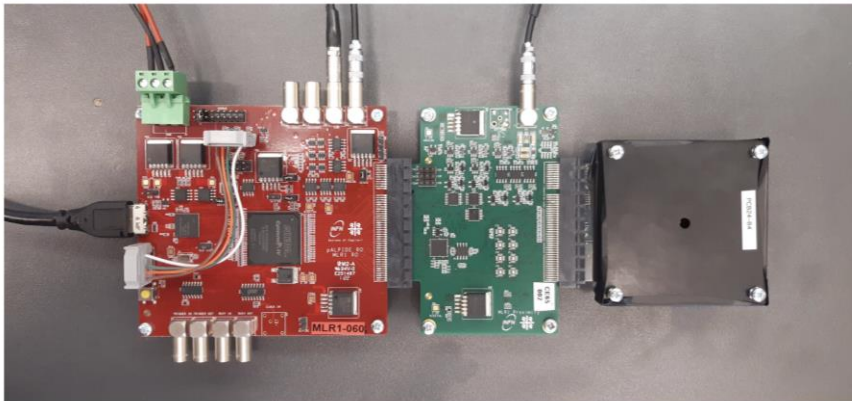
- FAIR Panda MVD** – currently characterization of MVD strip part, later R&D of the inner pixel part (maybe based on ITS3 MAPS technology).
- CERN** (ATLAS, RD50, RD53)
- FNAL**
- EIC ePIC** – members of EIC Silicon Consortium, our involvement includes testing and characterization of EIC-ITS3 vertex/tracking detector prototypes (co-development with ALICE-ITS3)

Our interests in ePIC SVT

Institutional contact: Lukas Tomasek Lukas.Tomasek@fjfi.cvut.cz

- we have joined **EIC Silicon Consortium** and then **ITS3**:
⇒ **We are involved in MLR1 sensor testing and characterization for ALICE/EIC ITS3 collaboration (WP3)**

Our current testing setup:



DAQ board	MLR1-060
proximity board	CE65 002
CE65 board	PCB24-B4, PCB25-A4
power supply	R&S HMP4040
HV reset	from 1 V to 4 V
SUB	short to GND
PWELL	short to GND
FW version	0x107E6A10.bit

CE65 setup

- ⇒ Main area for our involvement during **R&D phase** is to continue **testing and characterization of ITS3 sensors** (MLR, ER...) and maybe associated activities like DAQ software and firmware, (DAQ hardware design).

Our interests in ePIC SVT



For **production phase**:

- **Production module testing, QA,**
- Contribution DAQ software, firmware
- Contribution to Module assembly
- More clearly TBD later

What can we offer to ePIC SVT?

- Our expected manpower in EIC ePIC is around **1 FTE in the near future.**
- **Our resources** – equipment for characterization, testing, quality assurance of silicon detectors and ASICs in terms of detector response to high energy particles, radiation tolerance and electrical characteristics (IV, CV measurements).

For wafer and sensor testing we have available **a clean room with the automatic probe station** MPI TS3000 with 300 mm high voltage (up to 1100 V) thermal chuck (temperature range -40 to 200 C).



What can we offer to ePIC SVT?

- Irradiation tests of detectors – available resources in collaboration with our partners:
 - **“In house”**: X-ray source 120kV, 36W, various table radioactive sources (Fe55, Am etc.), slow and fast neutrons (AmBe, 14 MeV DT generator, small nuclear reactor),
 - **UJP Prague** (ujp.cz): Cobalt-60 gamma ray, measured dose rate up to 400 Gy/min in area 5x5 cm²,
 - **Nuclear Physics Institute CAS Rez** (ujf.cas.cz): reactor neutrons, ~30 MeV proton and heavy ion beam, electrons up to 25 MeV.



What can we offer to ePIC SVT?

- **For module assembly** (wafer dicing, die bonding, wedge and ball bonding etc.) in prototyping we use services of Czech company Argotech Trutnov (argotech.cz)

