
FACULTY OF PHYSICS
UNIVERSITY OF WARSAW

# The Faculty of Physics, University of Warsaw, group for the MPD collaboration at the future NICA collider

**3rd Collaboration meeting of the MPD and BM@N experiments at the NICA Facility**

Magdalena Kuich

# Members of the Faculty of Physics group

is composed of researchers active in the nuclear and particle physics research

Wojciech Dominik
(professor)

Izabela Skwira-Chalot
(associate professor)

Tomasz Matulewicz
(professor)

Magdalena Kuich
(PhD student)

Krzysztof Piasecki
(associate professor)

Dominika Wójcik
(PhD student)

# Our experience

- From **NA61/SHINE** collaboration and experiment at **CERN SPS**:
  - operation of large-volume Time Projection Chambers (TPC)
  - operation, maintenance and development of gas systems
  - simulation of physics processes related to hadron production in nucleus-nucleus collisions and proton-proton interactions
  - data analysis of identified hadron spectra
  - studies on the onset of deconfinement
- From **ELI-TPC** collaboration at **ELI-NP GBS**:
  - development of low-pressure TPC dedicated for the studies of photon-induced reactions
  - operation and development low-pressure gas systems
  - simulation of the properties of gaseous detectors and gas mixtures
- From **CMS** collaboration at **LHC CERN**:
  - development of RPC-based muon detectors

# Our experience

- From **FOPI** collaboration at **GSI Darmstadt**:
  - investigation of strangeness production and emission of non-strange hadrons in nucleus-nucleus collisions
  - fits of statistical hadronization model to the yield ratios from nucleus-nucleus collisions
  - femtoscopy of like-hadron pairs in nucleus-nucleus collisions
- From **HADES** collaboration at **GSI Darmstadt**:
  - studies on the production of strangeness below the free nucleon-nucleon energy threshold
- From **CBM** collaboration at **FAIR Darmstadt**:
  - feasibility and efficiency studies of strangeness measurement in nucleus-nucleus collisions
- From **BINA** collaboration at **KVI Groningen/ CCB Cracow**:
  - studies on the effects of 3-nucleon forces in the scattering of systems with the low number of nucleon

# Potential contribution

**Hardware:**

- construction and tests of TPC readout chambers
- designing of TPC Readout Control Units holders

**Software & physics:**

- simulation of nucleus-nucleus collision in various models
- detector and tracking efficiency studies
- centrality determination based on FHCal and TPC studies
- PID efficiency studies
- particle spectra analysis
- particle correlation and femtoscopy analysis

**Manpower:**

- experienced scientists and detector engineers
- students (Bachelor, Master and PhD)

**We are looking forward to working with you!**

**Thank you**