

# Marcel Bajdel

PHD STUDENT IN EXPERIMENTAL HIGH ENERGY PHYSICS · CONTROL SYSTEMS AND INSTRUMENTATION

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## Education

### Goethe University

Frankfurt am Main, Germany

PHD CANDIDATE

05.2019 - present

- PhD Thesis - supervisors - prof. Joachim Stroth, Hans Rudolf Schmidt  
*Development of Detector Control System for the Silicon Tracking System in the Compressed Baryonic Matter Experiment*

### University of Warsaw

Warsaw, Poland

M.S. IN NUCLEAR POWER ENGINEERING AND NUCLEAR CHEMISTRY SPECIALIZATION IN NUCLEAR PHYSICS

10.2016 - 2018

- Master's thesis - supervisors - dr hab. Agnieszka Korgul (UW), dr. Krzysztof Andrzejewski (NCNR), Łukasz Koszucki (NCNR)  
*Physical aspects of implementation of thorium in PWR reactors*
  - Modelling of the thorium fuel with SCALE
  - Performance evaluation of the thorium fuel in a PWR

Warsaw, Poland

B.S. IN NUCLEAR POWER ENGINEERING AND NUCLEAR CHEMISTRY

2012 - 2015

- Bachelor's thesis - supervisor - dr hab. Marek Karny (UW)  
*Calculation of decay heat in dependence on working time and power of the nuclear reactor*
- The thesis was based on writing a programme in C++ language to perform simulations

## Experience

### GSI Helmholtz Centre for Heavy Ion Research

Darmstadt, Germany

PHD STUDENT

05.2019 - present

- Development of EPICS based containerized detector control system for the mSTS at the mCBM experiment
- Implementation of the Control System for the Thermal Demonstrator
- Development of Fiber Bragg Grating fiber optic humidity sensor for high energy physics

### GSI Helmholtz Centre for Heavy Ion Research

Darmstadt, Germany

CBM COLLABORATION MEMBER

03.2019 - present

- Participation in developing the Silicon Tracking System
  - work in a laboratory with ASICs and FPGA based boards
  - operating commercial cooling devices - climatic chambers, chillers
  - mechanical aspects of experimental setup construction
  - instrumentation (temperature sensors, humidity sensors etc.)

### JINR, Joint Institute for Nuclear Research

Dubna, Russia

INTERNSHIP

15.07 - 5.08.2018

- Project title - supervisor - dr Marcin Bielewicz  
*Experimental Measurement of the Level of Transmutation and Neutron Flux Density in Subcritical Nuclear Reactors ADS*
- Analysis of data from QUINTA experiment
- Radioactive sources measurements employing HPGe detector

### TAURON Manufacture

Jaworzno, Poland

INTERNSHIP IN POWER PLANT

1.08 - 31.08.2017

- Involvement in daily tasks considering maintenance of energy production in conventional power plant
- Improvement of knowledge considering design and operation of machinery

### Institute of Plasma Physics and Laser Microfusion

Warsaw, Poland

EMPLOYEE AS SPECIALIST RESEARCHER AND TECHNICIAN

1.11.2015 - 30.06.2016

- Development of software (in Python) used for the analysis of gamma spectrum
- Data analysis from ongoing experiments
- Participation in experiment on PF-1000 device

### Institute of Plasma Physics and Laser Microfusion

Warsaw, Poland

INTERNSHIP IN RESEARCH GROUP LEADED BY S. JEDNOROG

1.07 - 30.09.2015

- Measurements of radioactive samples using HPGe detector
- Data analysis from ongoing experiments

## Conferences

### CBM Collaboration meeting highlight talk

PROTOTYPING A SCALABLE DETECTOR CONTROL SYSTEM FOR STS – EXPERIENCES AND PROSPECTS

Online

October 2021

### Quark Matter 2022 poster

SOLUTIONS FOR HUMIDITY AND TEMPERATURE MONITORING IN THE SILICON TRACKING SYSTEM OF COMPRESSED

BARYONIC MATTER EXPERIMENT: SENSORS, TESTING AND DCS INTEGRATION

Cracow, Poland

April 2022

### FAIRness 2022 poster

SOLUTIONS FOR HUMIDITY AND TEMPERATURE MONITORING IN THE SILICON TRACKING SYSTEM OF COMPRESSED

BARYONIC MATTER EXPERIMENT

Paralia Katerinis, Greece

May 2022

### FDTM 2022 poster

SOLUTIONS FOR HUMIDITY AND TEMPERATURE MONITORING IN THE SILICON TRACKING SYSTEM OF COMPRESSED

BARYONIC MATTER EXPERIMENT

Frascati, Italy

June 2022

### EPICS Collaboration Meeting 2022 talk

CONTAINERIZED EPICS-BASED DETECTOR CONTROL SYSTEM FOR THE MINI-COMPRESSED BARYONIC

MATTER(MCBM) EXPERIMENT

Ljubljana, Slovenia

September 2022

## Publications

### Publications and conference papers

- S. Jednorog, B. Bienkowska, M. Bajdel et al., *Radioyttrium monitor of D-D fusion*, Proceedings of International Conference on Research and Application of Plasmas (2015)
- M. Chernyshova, S. Jednorog, M. Bajdel et al., *GEM detectors development for radiation environment: neutron tests and simulations*, Proceedings of the SPIE, Volume 10031, id. 100313X 8 pp. (2016)
- S. Jednorog, E. Laszyska, M. Bajdel et al., *A new concept of fusion neutron monitoring for PF-1000 device*, NUKLEONIKA 62(1):17-22 (2017)
- M. Bajdel, P. Zumbruch, F. Feldbauer, P. Klaus, *The Containerized Detector Control System for mSTS in mCBM*, CBM Progress Report 2020, DOI:10.15120/GSI-2021-00421
- M. Bajdel, K. Agarwal, U. Frankenfeld1, J. M. Heuser, P. Koczon, S. Mehta, P. Zumbruch, and H. R. Schmidt, *Towards humidity and temperature monitoring of the STS*, CBM Progress Report 2020, DOI:10.15120/GSI-2021-00421
- M. Bajdel, the STS team, K. Kozlova, A. Sokolov, and P. Zumbruch, *EPICS based test setups on the way to the Silicon Tracking System's Detector Control System*, CBM Progress Report 2021, DOI:10.15120/GSI-2022-00599

## Skills

**Programming** Python, C++, VB, Matlab, Scale (NEWT, KENO), LaTeX

**Languages** native Polish, C1 English, C1 German, basics in Portuguese, French and Spanish

**Controls related** TI Portal, PLC programming, EPICS, LabView, Control System Studio

**Other** Kafka, Docker, PostgreSQL, Redis

**Soft Skills courses** HGS-HiRe Basic Course II: Leading Teams in a Research Environment, HGS-HiRe Basic Course I: Making an Impact as an Effective Researcher, Helmholtz Course III: Career and Leadership Development

## Educational trips and other activities

**1 week, 2013** CERN

**1 week, 2014** JINR

**1 week, 2014** Nuclear Power Plant in Leibstadt

**2019 - present** Member of GRADE - Goethe Graduate Academy

**2019 - present** Member of HGS HIRE - Helmholtz Graduate School for Hadron and Ion Research