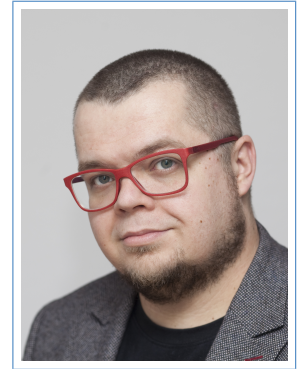


# Piotr Gasik

## Curriculum Vitae

✉ [p.gasik@gsi.de](mailto:p.gasik@gsi.de)



## Experience

### Research

- since 2020 **CBM Collaboration.**
  - o CBM Technical Coordinator
- since 2012 **RD51 Collaboration.**
  - o Convener of the Working Group "Detector Physics and Performance" (since Jan. '23)
  - o R&D with Micro Pattern Gaseous Detectors with focus on detector performance and stability against electrical discharges
- since 2012 **ALICE Collaboration.**
  - o ALICE TPC Upgrade: installation manager, coordinator of the readout chambers production
  - o editor of the Technical Design Report for the ALICE TPC Upgrade
  - o building full-size readout chamber prototypes for the ALICE TPC Upgrade project
- since 2007 **FOPI Collaboration.**
  - o data analysis: strangeness production in Al+Al collisions at 1.9A GeV beam energy

### Employments

- 01.02.2020–present **Staff physicist**, *GSI/FAIR GmbH*, Planckstr. 1, 64291 Darmstadt, Germany.
- 01.01.2019–31.01.2020 **Scientific Associate**, *CERN, EP-AIO*, CH-1211 Geneve 23, Switzerland.
- 01.05.2012–31.01.2020 **Research Assistant**, *Technische Universität München, Fakultät für Physik, Exzellenzcluster 'Universe'*, James-Franck-Str. 1, 85748 Garching, Germany.
- 01.01.2012–30.04.2012 **Independent engineering and technical assistant**, *University of Warsaw, Faculty of Physics, Institute of Experimental Physics*, Hoża 69, 00-681 Warsaw, Poland.

### Teaching

- 2021–2022 **Guest lecturer**, *TU Darmstadt*, Germany.
  - o Lecture: *Physics of nuclear and particle physics detectors* (Winter Semester '21, '22, '23)
- 2012–2020 **Research assistant**, *TU München*, Germany.
  - o Advisor of 10 bachelor and 4 master theses; mentor to 3 PhD students

- Lecture: *Gas detectors - theory and practice* (Summer Semester (SS) '15, '16, '17, Winter Semester (WS) '17)
- Laboratory course: *Detector construction* (SS '13, WS '17)
- *Advanced laboratory course for Bachelor and Master students* (WS '14)
- *Physics laboratory course for mechanical engineering* (WS '13, '14, SS '14)

2007–2011 **PhD Student**, *University of Warsaw, Warsaw, Poland.*

- Exercises: *Introduction to Nuclear and Particle Physics* (WS '07-'10)
- Laboratory course: *Uncertainty analysis and introductory physics* (SS '07)
- Laboratory course: *Measurement techniques* (SS '08-'10)

## Education - degrees

2023 **Habilitation in Experimental Physics**, *Technical University of Darmstadt, Department of Physics, Darmstadt, Germany.*

Thesis: Discharge phenomena in Micro Pattern Gaseous Detectors

2011 **PhD in Physics**, *University of Warsaw, Institute of Experimental Physics, Warsaw, Poland.*

Thesis: "The study of nuclear matter properties using strange particles: the analysis of Al+Al collisions at 1.9A GeV"

## Grants

2020 **RD51 Collaboration**, *Common project, CERN.*

"Discharge Consortium in quest for Spark-Less-Avalanche-Microstructures"

2018 **DFG cluster of excellence "Origin and Structure of the Universe"**, *Seed money project, Germany.*

"Facing destructive GEM discharges with a Charge-Coupled Device"

2015 **DFG cluster of excellence "Origin and Structure of the Universe"**, *Seed money project, Germany.*

"Building a prototype of a large-area GEM-based readout chamber for the operation inside a TPC"

2012 **National Science Center**, *Grant "OPUS", Grant no. 2011/03/B/ST2/03694, Poland.*

"Influence of the emission of  $\phi$  mesons on the  $K^-$  mesons spectrum shape in Al+Al collisions at 1.9A GeV"

## Reviewing and editorial experience

Member of the editorial team **NuPECC Long Range Plan 2024**, *TWG 8 Nuclear Physics Tools - Detectors and Experimental techniques.*

Journal reviewer **Journal of Instrumentation, Nuclear Instruments and Methods A, MDPI Particles, MDPI Applied Sciences, Radiation Physics and Chemistry.**

Project reviews **DUNE Near Detector (SAND) Project Review.**

Editorial board member **MDPI Particles, Frontiers in Detector Science and Technology.**

## Organizing activities

2023 **Organization of the new DRD1 Collaboration**, *convener of the Working Group "Applications", Work Package coordinator, CERN.*

- 11.2023 **RD51 Micro Pattern Gaseous Detectors School**, *Lecturer, tutor*, CERN.
- 6-10.11.2023 **3rd International Conference on Detector Stability and Aging Phenomena in Gaseous Detectors**, *International Program Committee*, CERN.
- 18-22.06.2018 **RD51 Collaboration meeting and the MPGD Stability" workshop**, *Organizing Committee Chair*, TU München, Garching.
- 08.03-17.04.2015 **"School of ROC" workshop**, *Organizing Committee Chair*, TU München, Garching.
- 26-27.10.2009 **FOPI Collaboration meeting**, *Organizing Committee Member*, U Warsaw, Warsaw.

## Key publications

- 1 **Systematic investigation of critical charge limits in Thick GEMs.**  
P. Gasik, L. Lautner, L. Fabbietti, H. Fribert, T. Klemenz, A. Mathis, B. Ulukutlu and T. Waldmann, *Nucl. Instrum. Meth. A* **1047**, 167730 (2023)
- 2 **Impact of the gas choice and the geometry on the breakdown limits in Micromegas detectors.**  
P. Gasik, T. Waldmann, L. Fabbietti, T. Klemenz, L. Lautner, B. Ulukutlu, *JINST* **18**, C06011 (2023)
- 3 **New (TH)GEM coating materials characterized using spectroscopy methods.**  
B. Ulukutlu, P. Gasik, T. Waldmann, L. Fabbietti, T. Klemenz, L. Lautner, R. de Oliveira and S. Williams, *Nucl. Instrum. Meth. A* **1019**, 165829 (2021)
- 4 **The upgrade of the ALICE TPC with GEMs and continuous readout.**  
J. Adolfsson *et al.* [ALICE TPC Collaboration], *JINST* **16**, P03022 (2021)
- 5 **High voltage scheme optimization for secondary discharge mitigation in GEM-based detectors.**  
L. Lautner, L. Fabbietti, P. Gasik and T. Klemenz, *JINST* **14**, P08024 (2019)
- 6 **Secondary discharge studies in single and multi GEM structures.**  
A. Deisting, C. Garabatos, P. Gasik *et al.*, *Nucl. Instrum. Meth. A* **937**, 168 (2019)
- 7 **Particle identification studies with a full-size 4-GEM prototype for the ALICE TPC upgrade.**  
M.M. Aggarwal *et al.* [ALICE TPC Collaboration], *Nucl. Instrum. Meth. A* **903**, 215 (2018)
- 8 **Charge density as a driving factor of discharge formation in GEM-based detectors.**  
P. Gasik, A. Mathis, L. Fabbietti and J. Margutti. *Nucl. Instrum. Meth. A* **870**, 116 (2017)
- 9 **Building a large-area GEM-based readout chamber for the upgrade of the ALICE TPC.**  
P. Gasik [for the ALICE Collaboration], *Nucl. Instrum. Meth. A* **845**, 222 (2017)
- 10 **Strange meson production in Al+Al collisions at 1.9 A GeV.**  
P. Gasik *et al.* [FOPI Collaboration], *Eur. Phys. J. A* **52**, 177 (2016)

## Key Presentations on conferences and seminars

- November 24, 2023 **Detector Seminar**, *Invited talk*, CERN, Geneva.  
title: "Towards the CBM experiment at FAIR"
- October 8, 2023 **3rd International Conference on Detector Stability and Aging Phenomena in Gaseous Detectors**, *Invited talk*, CERN, Geneva.  
title: "Discharge Stability and Resistive Structures"

- September 5, 2023 **Quark Matter 2023, Poster Contribution**, Houston, USA.  
title: "On the gravitational wave emission in the magnetic field of a heavy-ion collision"
- December 16, 2022 **Micro Pattern Gaseous Detectors 2022**, *Weizmann Institute of Science*, Rehovot, Israel.  
title: "Impact of the gas choice and the geometry on the breakdown limits in MPGD detectors"
- November 18, 2021 **Topical Workshop on Wide Dynamic Range Operation of MPGDs**, *Invited talk*, CERN, Geneva.  
title: "Discharge quenching - towards a spark-less MPGD"
- November 9, 2021 **The 2021 International Workshop on the High Energy Circular Electron Positron Collider**, *Invited talk*, Nanjing, China, Online.  
title: "Continuously operated TPCs for the future  $e^+e^-$  colliders"
- November 12, 2020 **4th FCC Physics and Experiments workshop, FCC November Week 2020**, *Invited talk*, Online.  
title: "Towards continuously read out TPC(s)"
- October 08, 2020 **Workshop on "New Horizons in TPCs"**, *Invited talk*, Santiago de Compostela, Spain.  
title: "Physics of discharges in gaseous media, from the point of view of MPGD detectors"
- May 25, 2020 **The 8<sup>th</sup> Annual Large Hadron Collider Physics conference**, *Invited talk*, Online.  
title: "ALICE upgrades"
- May 8, 2019 **Micro Pattern Gaseous Detectors 2019**, *Invited talk*, La Rochelle, France.  
title: "TPC technologies using MPGDs"
- May 15, 2018 **Quark Matter 2018**, *Invited talk*, Venice, Italy.  
title: "Upgrade of the ALICE central barrel tracking detectors: ITS and TPC"
- Oct. 13, 2017 **Brookhaven National Laboratory, Instrumentation Seminar**, Upton, USA.  
title: "Continuously operated TPC with GEM readout"
- Feb. 15–19, 2016 **14th Vienna Conference on Instrumentation (VCI)**, Vienna, Austria.  
title: "From gated to continuous readout: an upgrade of the ALICE TPC"
- Jul. 2–9, 2014 **37th International Conference on High Energy Physics (ICHEP)**, Valencia, Spain.  
title: "Upgrade of the ALICE Time Projection Chamber for High-Rate Experiments"
- Jan. 23–27, 2012 **50<sup>th</sup> International Winter Meeting on Nuclear Physics**, Bormio, Italy.  
title: "Strange probes of Al+Al collisions around threshold"