europass

WORK EXPERIENCE

POSTDOCTORAL RESEARCH ASSISTANT – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 01/04/2024 – Current – MAGURELE, ROMANIA

Business or Sector: Professional, scientific and technical activities | **Department:** Gamma Driven Experiments Department

Main activities include and are not limited to:

- Design, control and monitoring of distributed solutions for experimental set-ups using LabVIEW, a powerful software development environment. Integration experience of more than 7 years with various equipment e.g., Vacuum fore and turbo pumps, Servo and Stepper Drives, frequency converters, Mass Flow Controllers, Pressure Transducers, oscilloscopes, multimeters, PXI computers, microcontrollers, Multi axis moving systems, power supplies and more, from various brands e.g., MKS, Pfeiffer, Agilent, Boc Edwards, Bronkhorst, Lakeshore, Fluke, National Instruments, Phytron, CAEN, Mesytec and many more.
- Gas system design and execution for experimental set-ups, e.g. ionization chambers, time projection chambers etc. meant to operate continuously and steady for long periods of time.
- Supersonic gas jet measurements using an in-house built set-up with various methods i.e., Schlieren imaging, Pitot tube measurements, gas jet fluorescence.
- Apply mechanical design principles to develop innovative solutions for experimental setups.
- Utilize 3D printing techniques to create prototypes and functional components.
- Water jet cutting. Proficient in preparation and execution with an OMAX waterjet.
- Vacuum system design and integration. Extreme high-vacuum experience.
- Gas jet simulations from laminar to turbulent flows.
- Part of the FRS Ion Catcher and HADO-CSC Collaborations. The latter aims at building a two stage cryogenic stopping cell used for the formation of Radioactive Ions Beams.
- Active member in the Helium Recovery Unit (HRU) Project meant for a state of the art gas recirculation system for the HADO-CSC. Main author of the TDR.
- Active member in the photo-fission experimental programme at ELI-NP. This aims to build the ELI-BIC (Bragg Ionization Chamber) and the ELI-THGEM (Thick Gas Electron Multiplier).
- I designed, constructed and characterized a Thick Gas Electron Multiplier (THGEM) detector operating in low-pressure isobutane (5-10 mbar) for detecting fission fragments.
- Prepare and assist Bachelor and Master students with their theses.

ENGINEER – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 01/05/2024 – Current – MAGURELE, ROMANIA

Department: Department of Nuclear Physics

Design and construction of the 6th Experimental Line for the 9 MV Tandem Accelerator found in IFIN-HH.

- Design of a versatile scattering chamber.
- Integration of vacuum systems, moving systems, compressed air systems in order to create a new irradiation facility.
- Preparation of experiments that utilize the new beamline. Integration of a new control system for controlling the ion sources.

ENGINEER – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 01/04/2023 – 01/04/2024 – MAGURELE, ROMANIA

Department: Gamma Driven Experiments Department.

DOCTORAL RESEARCH ASSISTANT – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 20/07/2020 – 01/04/2023 – MAGURELE, ROMANIA

Business or Sector: Professional, scientific and technical activities |
Department: Gamma Driven Experiments Department - ELI-NP

ENGINEER – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 01/12/2015 – 20/07/2020 – MAGURELE

Business or Sector: Professional, scientific and technical activities | **Department:** Tandem Accelerators Department

The work experience includes accelerator physics and the fields of engineering required for development of experimental systems like:
- Control systems and system automations;
- Mechanical engineering;
- Vacuum engineering;
- Gas system engineering;
- Ion-beam engineering and instrumentations;
- Detector Physics.

TECHNICIAN – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 27/01/2015 – 01/12/2015 – MAGURELE

Business or Sector: Professional, scientific and technical activities | **Department:** Tandem Accelerators Department

INTERNSHIP – HORIA HULUBEI NATIONAL INSTITUTE FOR R&D IN PHYSICS AND NUCLEAR ENGINEERING (IFIN-HH) – 12/06/2014 – 15/10/2014 – MAGURELE, ROMANIA

Business or Sector: Professional, scientific and technical activities | **Department:** Tandem Accelerators Department

EDUCATION AND TRAINING

01/10/2017 – 21/11/2022

PHD Doctoral School of Engineering and Applications of Lasers and Accelerators

The work is focused on the formation of radioactive ion beams with state of the art ion catchers using gas flows, e.g. the High Area Density Orthogonal Extraction Cryogenic Stopping Cell (HADO-CSC). At ELI-NP, after the interaction of the gamma beam with actinide targets placed inside the HADO-CSC, fission products are produced via the process of photo-fission. These are then thermalized in the helium gaseous environment and are guided with the help of Direct Current (DC) and Radiofrequency (RF) fields. Moreover, the two-chamber design of the HADO-CSC uses supersonic jets as a guiding mechanism for the fission products.

The thesis covers different aspects which revolve around the formation and properties of the used supersonic jets. As such, the thesis starts by presenting the current research with exotic nuclei around the world whilst also emphasizing the conceptual design of the HADO-CSC. Several chapters cover the modeling principles of computational fluid dynamics with an emphasis on Laval nozzles and how supersonic jets are formed and used in the new stopping cell. Also the design of the Helium Recovery Unit is presented. The latter represents a recirculation gas system meant to be used with the HADO-CSC. One section of the thesis covers the Supersonic Test Unit or STU. This a setup designed and constructed in-house, to characterize supersonic gas jets with different invasive and non-invasive techniques. These results are applicable to the HADO-CSC. The last section of the thesis covers slow control systems used for nuclear physics and implemented in LabVIEW. Two control systems are presented, each with a different implementation. The queued message handler (QMH) was used to automate the scattering chamber on the 4th experimental line of the 9 MV Tandem accelerator of IFIN-HH. The Actor Framework with CS++ was used for the slow control development of the FRS Ion Catcher setup at GSI (Germany).

Field of study Physics | **Final grade** Summa Cum Laude |

Thesis Ion transport and extraction with gas flows in next generation ion catchers

01/10/2015 – 29/06/2017

MASTER'S DEGREE University Politehnica of Bucharest

Field of study Faculty of Applied Sciences | **Final grade** 10,00 |

Thesis Automated command and control system for Tandem particle accelerators

17/10/2011 – 01/06/2015

BACHELOR DEGREE University Politehnica of Bucharest

Field of study Faculty of Electronics, Telecommunications and Information Technology | **Final grade** 9,05

17/10/2007 – 17/06/2011
HIGH SCHOOL DIPLOMA I.C. Bratianu Highschool

09/01/2017 – 16/03/2017 France
JOINT UNIVERSITIES ACCELERATOR SCHOOL (JUAS) GRADUATION DIPLOMAS European Scientific Institute

- Course 1: The Science of Particle Accelerators. Rank 6/31
  - Longitudinal Beam Dynamics
  - Transverse Beam Dynamics
  - Synchrotron Radiation
  - Particle Optics
  - Linacs

- Course 2: The Technology & Applications of Particle Accelerators. Rank 16/26
  - Beam Instrumentation
  - RF Engineering
  - Normal Conducting Magnets
  - Vacuum
  - Particle Sources
  - Super Conducting Magnets

20/09/2016 – 15/11/2016
INTRODUCTION TO NUCLEAR AND PARTICLE PHYSICS GRADUATION DIPLOMA Center for Training and Specialization in the Nuclear Field

Field of study Nuclear Physics | **Final grade** 10,00

LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
FRENCH	B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

CATIA V5/V6 | NI LABVIEW | CCNA 1 - Introduction to Networks | CCNA 2 | COMSOL Multi-Physics | Coreldraw | Microsoft Windows and Office (and Open Office) | Windows, MacOS, Linux(wsl) | MATLAB&Simulink | ■ Adept knowledge in data analysis and graphing software "OriginPro"

DRIVING LICENCE

Driving Licence: B

CONFERENCES AND SEMINARS

27/05/2018 – 01/06/2018 Giens, France
EURORIB 2018

Poster: "Gas flow simulations in the cryogenic stopping cell for the IGISOL facility at ELI-NP".

26/04/2018 ELI-NP, Magurele
Developments and solutions for the cryogenic stopping cells at LEB/FAIR and ELI-NP

Presentation: "CFD simulations and gas system design for the HADO-CSC."

18/08/2021 – 27/08/2021 Sinaia, Romania

Carpathian Summer School of Physics 2021

Presentation: "RIB formation with supersonic jets at ELI-NP"

09/09/2024 – 13/09/2024

International Symposium on Nuclear Science

Presentation: "Characterization of supersonic helium jets used for heavy ion transport in ion catchers"

HONOURS AND AWARDS

2021

Young Researcher & Young Engineer Day

First prize. Presentation title: *Characterization of gas jets using the Supersonic Test Unit at ELI-NP*

13/09/2024

International Symposium on Nuclear Science – ISNS24

Second Prize. Best young scientist presentation. Presentation title: Characterization of supersonic helium jets used for heavy ion transport in ion catchers

OTHER ACTIVITIES

International schools

- Carpathian Summer School of Physics 2021 (18.08.2021 - 27.08.2021).
- ChETEC Training School in Nuclear Astrophysics Using Direct Methods (10.04.2018 - 21.04.2018).
- 15th Russbach School on Nuclear Astrophysics (18.03.2018 - 23.03.2018).
- Carpathian Summer School of Physics 2016 (26.06.2016 - 09.07.2016)

RESEARCH STAGES

01/10/2018 – 30/11/2018

GSI Helmholtz Centre for Heavy Ion Research GmbH, FRS Ion Catcher

20/01/2020 – 31/01/2020

GSI Helmholtz Centre for Heavy Ion Research GmbH, FRS Ion Catcher.

01/11/2020 – 21/12/2020

GSI Helmholtz Centre for Heavy Ion Research GmbH, FRS Ion Catcher.

RADIOLOGICAL PROTECTION IN PRACTICES WITH IONIZING RADIATION SOURCES

Permit Level 1

COMMUNICATION AND INTERPERSONAL SKILLS

Ability to communicate effectively in a foreign language and good pedagogical skills

- Participation in international conferences with papers presented in English.
- Trainer for the LabVIEW course during the "Summer school of science and technology from Magurele". (27.08.2018 - 3.09.2018). Class hands-on practice with Arduino and LabVIEW.
- Trainer for the "Introduction in robotics with Arduino" course and Science Lab coach during the "Summer school of science and technology from Magurele". (24.08.2019 - 6.09.2019).
- Mentoring and guiding bachelor and master students in their thesis projects.
- Excellent collaboration and teamwork abilities within multidisciplinary environments.
- Excellent project management skills.
- Cambridge Advanced C1 Certificate.
- French Studies Diploma Delf B1.

ANEXA 1

STANDARDE MINIMALE APLICABILE ÎN CADRUL IFIN-HH
pentru acordarea gradelor profesionale de
Cercetător debutant (Cercetător științific – CS) si
Cercetător recunoscut (Cercetător științific gr. III – CS III)

Aprobate în ședința Consiliului Științific IFIN-HH din data de 27.02.2025 (Hotărârea CS nr. 5 / 27.02.2025)

Standarde minimale (IFIN-HH)

1) IFIN-HH stabilește punctaje de prag (P_{prag}) conform tabelului de mai jos.

	Cercetător Debutant (CS)	Cercetător Recunoscut (CSIII)
P_{prag}	0.50	1.50

2) În procesul evaluării activității științifice a candidatului se determină punctajul P astfel:
$P=P_1+P_2$, unde
P_1 : pentru articole la care candidatul este autor, dar nu este prim-autor sau autor corespondent: $P_1 = \sum_i a_i/n_i^{ef}$
P_2 : pentru articole la care candidatul este prim autor sau autor corespondent: $P_2 = \sum_i a_i$
a_i = este scorul de influență absolut (Article influence score) al revistei științifice în care a fost publicat articolul *i*, corespunzător anului de publicare al acestuia conform http://www.eigenfactor.org/ pentru articole publicate până în 2006 și Journal Citation report (Web of Science) începând cu anul 2007; în cazul în care anul de publicare nu se găsește în baza de date se va alege anul cel mai apropiat.
n_i^{ef} = reprezintă numărul efectiv de autori ai elementului ***i*** și se determină astfel:

n_i	dacă $n_i \leq 5$
$(n_i + 5)/2$	dacă $5 < n_i \leq 15$
$(n_i + 15)/3$	dacă $15 < n_i \leq 75$
$(n_i + 45)/4$	dacă $n_i > 75$

unde n_i este în general numărul de autori ai elementului *i*. În cazul publicațiilor din domeniul HEPP (High Energy Particle Physics) cu număr mare de autori, dacă articolul are la bază o notă internă a colaborării și candidatul este coautor al acestei note interne, atunci n_i^{ef} poate fi dat numărul de autori din nota internă.
Calitatea de prim-autor sau autor corespondent se stabilește pe baza mențiunilor din articol. Nu se iau în considerare în acest sens articolele la care autorii sunt indicați în ordinea alfabetică a numelui și candidatul este prim-autor exclusiv datorită numelui acestuia și ordonării alfabetice. În cazul publicațiilor HEPP cu număr mare de autori, dacă articolul are la bază o notă internă a cărei aprobare în vederea trimiterii la publicare a fost susținută de către autor, atunci autorul este considerat prim autor.

Fișa de autoevaluare aferentă standardelor minimale:

Categoria de articole	Poziția în lista de lucrări	Punctaj	Detalii de calcul
Articole în reviste cotate ISI Thomson Reuters și în volume indexate ISI Proceedings pentru care candidatul nu este prim autor sau autor corespondent	2	0.0472	J. Instrum. 13, 2018, AIS=0.425, nr. autori:13, nr. ef: 9
	3	0.0384	Rom. Rep. Phys. 71, 204, 2019, AIS=0.269, nr. autori:9, nr. ef: 7
	4	0.0132	Univ. Politeh. Buchar. Sci. Bull.-Ser. A-Appl. Math. Phys. 81, 2019, AIS=0.086, nr. autori:8, nr. ef: 6.5
	7	0.0427	Nucl. Instrum. Methods Phys. Res. Sect. B-Beam Interact. Mater. Atoms, 461, 2019, AIS=0.299, nr. autori:9, nr. ef: 7
	10	0.0229	Univ. Politeh. Buchar. Sci. Bull.-Ser. A-Appl. Math. Phys. 88, 2020, AIS=0.160, nr. autori:9, nr. ef: 7
	11	0.02	Univ. Politeh. Buchar. Sci. Bull.-Ser. A-Appl. Math. Phys. 88, 2020, AIS=0.160, nr. autori:11, nr. ef: 8
	12	0.0246	Univ. Politeh. Buchar. Sci. Bull.-Ser. A-Appl. Math. Phys. 88, 2020, AIS=0.160, nr. autori:8, nr. ef: 6.5
	13	0.0197	Acta Phys. Pol. B. 51, 817, 2020, AIS=0.203, nr. autori:16, nr. ef: 10.33
	15	0.0316	Phys. Rev. C 103, 2021, AIS=0.747, nr. autori:56, nr. ef: 23.66
	17	0.0305	Nucl. Instrum. Methods Phys. Res. Sect. B-Beam Interact. Mater. Atoms, 512, 2022, AIS=0.290, nr. autori:14, nr. ef: 9.5
	18	0.033	Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1027, 2022, AIS=0.374, nr. autori:19, nr. ef: 11.33
	20	0.084	Int. J. Mass Spectrom. 478, 2022, AIS=0.462, nr. autori:6, nr. ef: 5.5
	21	0.0377	Rom Rep Phys 74, 202, 2022, AIS=0.245, nr. autori:8, nr. ef: 6.5
	22	0.0305	Applied Radiation and Isotopes 191, 2023, AIS=0.290, nr. autori:14, nr. ef: 9.5
	23	0.0506	Physics Letters B, 839, 2023, AIS=1.232, nr. autori:58, nr. ef: 24.33
	24	0.0296	Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1055, 2023, AIS=0.326, nr. autori:18, nr. ef: 11
	25	0.0204	Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1063, 2024, AIS=0.326, nr. autori:33, nr. ef: 16

	26	0.1764	Phys. Rev. Lett. 133, 2024, AIS=2.880, nr. autori:34, nr. ef: 16.33
	27	0.0331	Phys. Scr. 99, 2024, AIS=0.353, nr. autori:17, nr. ef: 10.66
	28	0.0151	Nucl. Phys. A 1057, 2025, AIS=0.377, nr. autori:60, nr. ef: 25
	29	0.0211	J. Instrum. 1024. 2025, AIS=0.373, nr. autori:38, nr. ef: 17.66
	30	0.0286	Eur. Phys. J.-Spec. Top., 2025, AIS=0.553, nr. autori:43, nr. ef: 19.33
	31	0.0407	Phys. Plasmas, 2025, AIS=0.515, nr. autori:23, nr. ef: 12.66
	32	0.0326	Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1063, 2025, AIS=0.326, nr. autori:15, nr. ef: 10
	33	0.0426	Phys. Lett. B, 868, 2025, AIS=1.107, nr. autori:63, nr. ef: 26
	34	0.0632	Phys. Rev. Res, 7, 2025, AIS=1.495, nr. autori:56, nr. ef: 23.66
	35	0.0394	Phys. Rev. C 112, 2025, AIS=0.63, nr. autori:33, nr. ef: 16
Articole în reviste cotate ISI Thomson Reuters și în volume indexate ISI Proceedings pentru care candidatul este prim autor sau autor corespondent	9	0.16	Univ. Politeh. Buchar. Sci. Bull.-Ser. A-Appl. Math. Phys. 82, Iss. 2, 2020, AIS=0.16
	16	0.29	Nucl. Instrum. Methods Phys. Res. Sect. B-Beam Interact. Mater. Atoms, 499, 2021, AIS=0.29
	19	0.374	Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1034, 2022, AIS=0.374
TOTAL		**1.8934**	

iv. Full List of published papers

1. **Characterization of X3 Silicon Detectors for the ELISSA Array at ELI-NP**, S. Chesnevskaya, D.L. Balabanski, D. Choudhury, M. La Cognata, P. Constantin, D.M. Filipescu, D.G. Ghita, G.L. Guardo, D. Lattuada, C. Matei, A. Rotaru, C. Spitaleri, A. State, Y. Xu. EPJ Web Conf., (**2017**).

2. **Performance studies of X3 silicon detectors for the future ELISSA array at ELI-NP**, S. Chesnevskaya, D.L. Balabanski, D. Choudhury, P. Constantin, D.M. Filipescu, D.G. Ghita, G.L. Guardo, D. Lattuada, C. Matei, A. Rotaru, A. State, J. Instrum. 13 (**2018**).

3. **Ion beam optic simulations at the 1MV Tandetron from IFIN-HH Bucharest**, D. Pacesila, D. Ghita, T. Sava, M. Straticiuc, V. Mosu, A. Rotaru, A. State, O. Gaza, G. Cata-Danil. Romanian Reports in Physics, 71, 204 (**2019**).

4. **Simulation of circular radio-frequency carpets for ion extraction from cryogenic stopping cells**, A. Rotaru, G. Căta-Danil, P. Constantin, D.L. Balabanski, T. Sava, A. State, A. Spătaru, D. Nichita. UPB Sci. Bull. Ser. A Appl. Math. Phys. 81 (**2019**).

5. **Status of ELI-NP and opportunities for hyperfine research**, D.L. Balabanski, P. Constantin, A. Rotaru, A. State, Hyperfine Interactions, 240 (**2019**).

6. **The cryogenic stopping cell of the IGISOL facility at ELI-NP**, P. Constantin, A. Rotaru, A. State, D. Nichita, A. Spataru, D.L. Balabanski, T. Sava, M. Merisanu, T. Roman, C. Scheidenberger, T. Dickel, W.R. Plass. Nuovo Cim. Della Soc. Ital. Di Fis. C. 42 (**2019**).

7. **The ELI-NP IGISOL radioactive ion beam facility**, P. Constantin, D.L. Balabanski, A. State, A. Rotaru, D. Nichita, A. Spataru, T. Dickel, W.R. Plaß, C. Scheidenberger, Nucl. Instruments Methods Phys. Res. Sect. B Beam Interact. with Mater. Atoms. 461 (**2019**).

8. **Applications at the 3 MV TandetronTM from IFIN-HH**, I. Burducea, A. Mitu, A. Rotaru, A. Rugină, A. State, A. Vasiliu, B. Savu, D. V. Moşu, D. Iancu, D. A. Mirea, D. Păceşilă, P. Mereuţă, R. F. Andrei, T. B. Sava, and M. Straticiuc, AIP Conference Proceedings 2076, 050001 **(2019)**.

9. **Ion extraction from gas cells with supersonic jets formed in laval nozzles**, A. State, M. Merisanu, D.L. Balabanski, P. Constantin, T. Sava, A. Rotaru, T. Roman, D. Nichita, A. Spătaru, W.R. Plaß. UPB Sci. Bull. Ser. A Appl. Math. Phys. 82 (**2020**).

10. **Multi-nucleon transfer reactions in 238U + 64Ni using grazing model**, A. Spătaru, T. Dickel, W.R. Plaß, J.S. Winfield, P. Constantin, D.L. Balabanski, D. Nichita, A. Rotaru, A. State, UPB Sci. Bull. Ser. A Appl. Math. Phys. 82 (**2020**).

11. **Optimization of photo-fission fragment production in the Elisol setup at ELI-NP**, D. Nichita, P. Constantin, D.L. Balabanski, B. Mei, A. Rotaru, T. Sava, A. Spătaru, A. State, T. Dickel, B. Kindler, B. Lommel. UPB Sci. Bull. Ser. A Appl. Math. Phys. 82 (**2020**).

12. **Preliminary results on the measurement of plutonium isotopic ratios at the 1mv Ams facility in IFIN-HH**, D.G. Pacesila, A.R. Petre, E. Chamizo Calvo, A.I. Rotaru, A. N. State, V.D. Mosu, M. Virgolici, G. Căta-Danil. UPB Sci. Bull. Ser. A Appl. Math. Phys. 82 (**2020**).

13. **Production of exotic nuclei via MNT reactions using gas cells**, A. Spătaru, D.L. Balabanski, O. Beliuskina, P. Constantin, T. Dickel, C. Hornung, A. Kankainen, A.V. Karpov, D. Nichita, W. Plass, S. Purushothaman, A. Rotaru, V.V. Saiko, A. State, J.S. Winfield, A. Zadvornaya. Acta Phys. Pol. B. 51 (**2020**).

14. **The IGISOL Facility at ELI-NP**, Dimiter L. BALABANSKI, Adrian ROTARU, Alexandru STATE, Mihai MERISANU, Le Tuan ANH, Tiberiu SAVA, Dan GHITA, Christoph SCHEIDENBERGER, Timo DICKEL, Wolfgang R. PLASS, Proceedings of 10th International Conference on Nuclear Physics at Storage Rings (STORI'17)

15. **Mass measurements of As, Se and Br nuclei and their implication on the proton-neutron interaction strength towards the N=Z line**, I. Mardor, S. Ayet San Andrés, T. Dickel, D. Amanbayev, S. Beck, J. Bergmann, H. Geissel, L. Gröf, E. Haettner, C. Hornung, N. Kalantar-Nayestanaki, G. Kripko-Koncz, I. Miskun, A. Mollaebrahimi, W. R. Plaß, C. Scheidenberger, H. Weick, Soumya Bagchi, D. L. Balabanski, A. A. Bezbakh, Z. Brencic, O. Charviakova, V. Chudoba, Paul Constantin, M. Dehghan, A. S. Fomichev, L. V. Grigorenko, O. Hall, M. N. Harakeh, J.-P. Hucka, A. Kankainen, O. Kiselev, R. Knöbel, D. A. Kostyleva, S. A. Krupko, N. Kurkova, N. Kuzminchuk, I. Mukha, I. A. Muzalevskii, D. Nichita, C. Nociforo, Z. Patyk, M. Pfützner, S. Pietri, S. Purushothaman, M. P. Reiter, H. Roesch, F. Schirru, P. G. Sharov, A. Spătaru, G. Stanic, A. State, Y. K. Tanaka, M. Vencelj, M. I. Yavor and J. Zhao, Phys. Rev. C 103 (**2021**)

16. **Experimental set-up for high precision nuclear physics measurements at the IFIN-HH 9MV tandem accelerator**, A. State, M. Petrașcu and D. Ghiță, Nucl. Instruments Methods Phys. Res. Sect. B Beam Interact. with Mater. Atoms. 499 (**2021**).

17. **INCREASE: An in-cell reaction system for multi-nucleon transfer and spontaneous fission at the FRS ion catcher**, Adrian Rotaru, Daler Amanbayev, Dimiter L.Balabanski, David Benyamin, Paul Constantin, Timo Dickel, Lizzy Gröf, Israel Mardor, Ivan Miskun, Dragos Nichita, Wolfgang R. Plaß, Christoph Scheidenberger, Anamaria Spătaru, Alexandru State, Nucl. Instruments Methods Phys. Res. Sect. B Beam Interact. with Mater. Atoms. 512 (**2022**).

18. **ELIGANT-GN — ELI Gamma Above Neutron Threshold: The Gamma-Neutron setup**, P.-A. Söderström, E. Açıksöz, D.L. Balabanski, F. Camera, L. Capponi, Gh. Ciocan, M. Cuciuc, M. Filipescu, I. Gheorghe, T. Glodariu, J. Kaur, M. Krzysiek, C. Matei, T. Roman, A. Rotaru, A.B. Şerban, A.State, H. Utsunomiya, V. Vasilca, Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1027 (**2022**).

19. **The slow control of the FRS Ion Catcher**, A. N. State, S. Beck, D.Amanbayev, D. L. Balabanski, H.Brand, P.Constantin, T. Dickel, C. Hornung, D. Nichita, W. R. Plaß, H. Roesch, A. Rotaru, C. Scheidenberger, J. Siebring, A. Spataru, N. Tortorelli, J. Zhao, Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1034 (**2022**).

20. **Spiral RF carpet for ion mass spectrometry with radioactive isotope beams**, A. Rotaru, P. Constantin, D.L.Balabanski, D. Nichita, A. Spătaru, A.N. State, Int. J. Mass Spectrom., 478 (**2022**).

21. **Development of an external ion beam setup at the 3 MV Tandetron accelerator at IFIN-HH**, A. Rotaru, M. Straticiuc, A. State, I. Burducea, V. Runceanu, D. Iancu, R. F. Andrei, D. Ghita, Rom. Rep. Phys. 74, 202 (**2022**)

22. **Design and construction of a 9 MeV γ-ray source based on capture of moderated plutonium–beryllium neutrons in nickel**, P.-A. Söderström, D.L. Balabanski, R.S. Ban, Gh. Ciocan, M. Cuciuc, A. Dhal, V. Fugaru, V. Iancu, A. Rotaru, A.B. Şerban, A. State, D. Testov, G.V. Turturică, V. Vasilca, Appl. Radiat. Isot. 191 (**2023**)

23. **Studying Gamow-Teller transitions and the assignment of isomeric and ground states at N=50**, Ali Mollaebrahimi, Christine Hornung, Timo Dickel, Daler Amanbayev, Gabriella Kripko-Koncz, Wolfgang R. Plaß, Samuel Ayet San Andres, Sonke Beck, Andrey Blazhev, Julian Bergmann, Hans Geissel, Magdalena Gorska, Hubert Grawe, Florian Greiner, Emma Haettner, Nasser Kalantar-Nayestanaki, Ivan Miskun, Frederic Nowacki, Christoph Scheidenberger, Soumya Bagchi, Dimiter L. Balabanski, Ziga Brencic, Olga Charviakova, Paul Constantin, Masoumeh Dehghan, Jens Ebert, Lizzy Grof, Oscar Hall, Muhsin N. Harakeh, Satbir Kaur, Anu Kankainen, Ronja Knobel, Daria A. Kostyleva, Natalia Kurkova, Natalia Kuzminchuk, Israel Mardor, Dragos Nichita, Jan-Hendrik Otto, Zygmunt Patyk, Stephane Pietri, Sivaji Purushothaman, Moritz Pascal Reiter, Ann-Kathrin Rink, Heidi Roesch, Anamaria Spătaru, Goran Stanic, Alexandru State, Yoshiki K. Tanaka, Matjaz Vencelj, Helmut Weick, John S. Winfield, Michael I. Yavor, Jianwei Zhao, Phys. Lett. B, 839 (**2023**)

24. **Recent Upgrades of the Gas Handling System for the Cryogenic Stopping Cell of the FRS Ion Catcher**, A. Mollaebrahimi, D. Amanbayev, S. Ayet San Andrés, S. Beck, J. Bergmann, T. Dickel, H. Geissel, C. Hornung, N. Kalantar-Nayestanaki, G. Kripko-Koncz, I. Miskun, D. Nichita, W.R. Plaß, I. Pohjalainen, C. Scheidenberger, G. Stanic, A. State, J. Zhao, Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1055 (**2023**)

25. **Novel device to study double-alpha decay at the FRS Ion Catcher**, L. Varga, H. Wilsenach, O. Hall, T. Dickel, M. P. Reiter, D. Amanbayev, T. Davinson, D. J. Morrissey, I. Pohjalainen, N. Tortorelli, J. Yu, J. Zhao, S. Ayet, S. Beck, J. Bergmann, Z. Ge, H. Geissel, L. Heitz, C. Hornung, N. Kalantar-Nayestanaki, E. Khan, G. Kripko-Koncz, I. Mardor, M. Narang, W. Plass, C. Scheidenberger, M. Simonov, S. K. Singh, A. State, C. Theisen, M. Vandebrouck, and P. J. Woods, Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip., 1063 (**2024**)

26. **Direct Observation of Competing $M1$ and $M3$ Transitions in ^{10}B**, A. Kuşoğlu, D. L. Balabanski, R. Z. Hu, S. Q. Fan, F. R. Xu, P. Constantin, P.-A. Söderström, M. Cuciuc, S. Aogaki, R. S. Ban, R. Borcea, A. Coman, R. Corbu, C. Costache, A. Covali, I. Dinescu, N. M. Florea, V. Iancu, A. Ionescu, N. M. Mărginean, C. Mihai, R. E. Mihai, C. V. Nedelcu, T. Petruse, H. Pai, A. Pappalardo, O. A. Sirbu, C. O. Sotty, L. Stan, A. N. State, D. A. Testov, T. Tozar, A. Turturica, G. Turturica, S. Ujeniuc, C. A. Ur, V. Vasilca, and F. Zhu, Phys. Rev. Lett. **133**, 072502 (**2024**).

27. **In-cell multi-nucleon transfer reactions at the FRS Ion Catcher**, P. Constantin, T. Dickel, A. V. Karpov, D. Amanbayev, D. Balabanski, H. Geissel, K. Mahajan, I. Mardor, A. Mollaebrahimi, W. R. Plaß, A. Rotaru, V. V. Saiko, C. Scheidenberger, A. Spătaru, A. State, J. Zhao, and the Super-FRS Collaboration, Physica Scripta **99**, 075313 (**2024**).

28. **First observation of MNT isotope beams at the FRS Ion Catcher**, A. Mollaebrahimi, P. Constantin, T. Dickel, D. Amanbayev, S. Glöckner, E. Haettner, D. Kar, G. Kripko-Koncz, D. Kumar, K. Mahajan, I. Mardor, D. Morrissey, M. Narang, W. R. Plaß, A. Shrayer, N. Tortorelli, J. Yu, J. Ahokas, B. Amorim, S. Ayet San Andrés, S. Bagchi, M. Bajzek, D. Balabanski, J. Bergmann, K. Botsiou, V. Charviakova, T. Eronen, Z. Ge, M. Harakeh, C. Hornung, N. Hubbard, A. Jaries, N. Kalantar-Nayestanaki, A. Kankainen, A. Karmakar, R. Lozeva, J. L. Rodríguez Sánchez, I. Mitsiou, M. P. Reiter, V. Piau, Z. Podolyak, R. Prajapat, D. Prajapati, S. Purushothaman, M. Reponen, E. Rocco, J. Ruotsalainen, C. Scheidenberger, M. Simonov, D. Kostyleva, S. K. Singh, A. Spătaru, A. State, I. Stefanescu, Y. K. Tanaka, L. Trache, L. Welde, and J. Zhao, Nucl. Phys. A **1057**, 123041 (**2025**).

29. **Proton beam energy calibration of the 3 MV Tandetron™ at IFIN-HH**, D.A. Testov, M. Straticiuc, S. Aogaki, R.F. Andrei, A.K. Azhibekov, D.L. Balabanski, S.R. Ban, M. Brezeanu, I. Burducea, P. Constantin, A. Dhal, N. Djourelov, N. Florea, A. Gavrilescu, L. Guardo, D. Iancu, S. Ioannidis, D. Kahl, I. Kuncser, Zh. Kurmanaliyev, A. Kusoglu, G. Lorusso, B. Mauyey, A. Morzabayev, C.V. Nedelcu, D. Nichita, S. Niculae, P. Parlea, C. Paun, T. Petruse, A. Rotaru, R. Roy, P.-A. Söderström, A. Spataru, A.N. State, V. Toma, T. Tozar, V. Vasilca, J. Instrum. (**2025**)

30. **Technical design report for the cryogenic stopping cell of the Super-FRS at FAIR**, D. Amanbayev, W. R. Plaß, T. Dickel, S. Ayet San Andrés, P. Dendooven, H. Geissel, E. Haettner, M. N. Harakeh, I. Miskun, S. Purushothaman, M. Ranjan, M. P. Reiter, A.-K. Rink, C. Scheidenberger, Z. Andelkovic, S. Bagchi, D. Balabanski, S. Beck, J. Bergmann, M. Block, P. Constantin, S. Danaila, J. Ebert, F. Greiner, L. Gröf, F. Heiße, F. Herfurth, C. Hornung, C. Jesch, N. Kalantar-Nayestanaki, I. Mardor, M. Merisanu, I. D. Moore, M. Petrick, S. Pietri, I. Pohjalainen, A. Spătaru, A. N. State, H. Weick, J. S. Winfield, M. Winkler, M. I. Yavor, and for the Super-FRS Experiment Collaboration, Eur. Phys. J. Spec. Top. (**2025**).

31. **Ion velocity vector measurement using stacked CR-39 with the aid of machine learning**, T. Minami, F. Nikaido, Y. Abe, T. Yasui, A. Tokiyasu, H. Kohri, M. Cuciuc, R. Borcea, A. State, R. Corbu, S. Ban, A. Turturica, S. Aogaki, Y. Nakamiya, O. Tesileanu, D. Doria, K. Sakai, S. Tanaka, H. Suzuki, S. Kodaira, M. Kanasaki, Y. Fukuda, Y. Kuramitsu, Phys. Plasmas (**2025**).

32. **Implementation of the Gas Management System for the ELI-NP Mini-electronic Time Projection Chamber**, V. Vasilca, T. Roman, A. Rotaru, D.A. Testov, A. State, Y. Xu, D. Kahl, G. Ciocan, M. Merişanu, E. Udup, P. Pârlea, P.-A. Söderström, Ş. Niculae, V. Toma, D.L. Balabanski, Nucl. Instrum. Methods Phys. Res. Sect. A-Accel. Spectrom. Dect. Assoc. Equip. (**2025**).

33. **Probing the isospin mixing in the 72Kr compound nucleus via GDR γ decay**, A. Giaz, O. Wieland, A. Bracco, F. Camera, S. Aogaki, D.L. Balabanski, M. Brezeanu, R. Borcea, M. Boromiza, I. Burducea, S. Calinescu, A. Coman, P. Constantin, C. Costache, M. Ciemała, G. Ciocan, C. Clisu, F.C.L. Crespi, M. Cuciuc, A. Dhal, I. Dinescu, N. Djourelov, N.M. Florea, I. Gheorghe, D. Iancu, V. Iancu, D.M. Kahl, M. Kmiecik, A. Kuşoğlu, R. Lica, A. Maj, N.M. Mărginean, R. Mărginean, C. Mihai, R.E. Mihai, B. Million, C. Neacsu, D. Nichita, C.R. Niţă, H. Pai, A.D. Pappalardo, T. Petruse, A. Rotaru, A.B. Serban, P.-A. Söderström, C.O. Sotty, A. Spătaru, L. Stan, A.N. State, A. Stoica, D.A. Testov, S. Toma, T. Tozar, A. Turturică, G.V. Turturică, S. Ujeniuc, V. Vasilca, Y. Xu, F. Zhu, Phys. Lett. B, 868, (**2025**).

34. **Direct Mass Measurement of ^{93}Pd and Implications for the Isomer Structures in ^{94}Ag: Tracing the Two-proton Decay Branch**, G. Kripkó-Koncz, W.R. Plaß, I. Dedes, D.D. Dao, T. Dickel, C. Hornung, D. Amanbayev, S. Ayet San Andrés, S. Beck, J. Bergmann, A. Blazhev, J. Dudek, H. Geissel, E. Haettner, N. Kalantar-Nayestanaki, I. Mardor, I. Miskun, A. Mollaebrahimi, X. Mougeot, I. Mukha, F. Nowacki, C. Scheidenberger, J. Äystö, S. Bagchi, D.L. Balabanski, A. Baran, Ž. Brenčič, V. Charviakova, P. Constantin, M. Dehghan, Z. Ge, M. Górska, L. Gröf, O. Hall, M.N. Harakeh, J.-P. Hucka, A. Kankainen, R. Knöbel, D.A. Kostyleva, N. Kurkova, N. Kuzminchuk, D. Nichita, Z. Patyk, S. Pietri, S. Purushothaman, M.P. Reiter, M. Reponen, H. Roesch, A. Spătaru, G. Stanic, A. State, Y.K. Tanaka, M. Vencelj, H. Weick, J. Yang, M.I. Yavor, J. Zhao, Phys. Rev. Res., 7, (**2025**).

35. **Alpha-induced neutron emission from ^{27}Al: a cross-section study**, R. Roy*, D.A. Testov, D.L. Balabanski, M. Kaur, A. Kuşoğlu, G. Lorusso, S. Singh, P.-A. Söderström, Y. Xu, S. Aogaki, S.-R. Ban, M. Brezeanu, I. Burducea, R. Corbu, M. Cuciuc, A. Dhal, N. Djourelov, N. Florea, A. Gavrilescu, C. Gheorghiu, G.L. Guardo, D. Iancu, V. Lelasseux, C.V. Nedelcu, H. Pai, P. Parlea, T. Petruse, A.N. State, M. Straticiuc, V. Toma, T. Tozar, and D. Choudhury, *Phys. Rev. C* 112 (**2025**).

ii. List of Patents

1. **RO134663A0** - Covor electric cu electrozi infasurati pentru transportul ionilor. Publicat in 30.12.2020. Inventatori: A. Rotaru, D. L. Balabanski, P. Constantin, D. Nichita, A. Spătaru, A.N. State