


 PERSONAL  
INFORMATION

**Duminică Ioana**

Sex Female | Nationality Romanian

 WORK  
EXPERIENCE

 [ 02/2022 – Current ] **Scientific Research Assistant**  
*IFIN-HH, Magurele, Romania*

 [ 02/2025 – Current ] **Associate Teaching Assistant**  
**(Standard Model&Beyond Standard Model Seminars for Theoretical and Computational Physics and High Energy Physics Master students)**  
*University of Bucharest, Faculty of Physics, Magurele, Romania*

 [ 10/2024 – Current ] **Scientific Research Assistant**  
*University of Bucharest, Faculty of Physics, Magurele, Romania*

 [ 04/2022 – 10/2024 ] **Physics Specialist**  
*University of Bucharest, Faculty of Physics, Magurele, Romania*

 [ 01/05/2021 – 31/07/2021 ] **Substitute Physics Teacher**  
*"Octav Băncilă" National College of Art Iași*

 EDUCATION  
AND  
TRAINING

 [ 01/10/2022 – Current ] **PhD in High Energy Physics**  
*Faculty of Physics, University of Bucharest, Magurele, Romania*  
**Field(s) of study:** Theoretical and Computational Physics  
**Thesis:** Study of Experimental Evidences of BSM Theories Using High-Level Computational and Data Processing Methods

 [ 24/09/2024 – 08/10/2024 ] **European School of High-Energy Physics 2024**  
*HydroHotel Peebles, Scotland*

 [ 01/10/2022 – 21/11/2023 ] **ATLAS Qualification Task**  
**CERN & UNIBUC**  
**Internal note:** Characterization of the Cosmic Ray Background in Run3

 [ 01/10/2020 – 01/07/2022 ] **Hadron Collider Physics Summer School**  
*Faculty of Physics, University of Goettingen, Germany*

 [ 10/2021 – 02/2022 ] **Internship on subjects involving fundamental interactions and W and Z boson production in ATLAS detector**  
**(through the De la Student la Antreprenor/From student to entrepreneur project)**  
*DFPE, IFIN-HH, Magurele, Romania*

 [ 24/07/2020 – 01/08/2022 ] **Theoretical and Computational Physics Master's Degree**  
*Faculty of Physics, University of Bucharest, Magurele, Romania*  
**Field(s) of study:** Natural sciences, mathematics and statistics: *Physics*  
**Final grade:** 10  
**Thesis:** From the Standard Model to the Minimal Supersymmetric Standard Model

[ 07/2020 – 09/2020 ] **Internship on various subjects involving quantum field theory and fundamental interactions**

**Faculty of Physics, University of Bucharest, Magurele, Romania**

[ 12/07/2019 – 17/09/2019 ] **Visiting Student Erasmus+ (Theoretical Physics)**

**Faculty of Physics, University of Helsinki, Finland**

[ 01/10/2017 – 01/07/2020 ] **Bachelor's Degree in Physics**

**Faculty of Physics, „Alexandru Ioan Cuza” University Iași, Romania**

**Field(s) of study:** Natural sciences, mathematics and statistics: *Physics*

**Final grade:** 10

**Thesis:** Quantum Fields and The Standard Model

[ 15/09/2013 – 15/06/2017 ] **Baccalaureate Diploma**

**„Costache Negruzzi” College Iași, Romania**

**Field(s) of study:** Natural sciences

**Final grade:** 10

## PERSONAL SKILLS

Mother tongue(s) Română

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	C2				
German	B1	B1	B1	B1	B1
	B1				

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

[Common European Framework of Reference for Languages](#)

Communication skills

Good communication skills; Able to work in various social and cultural contexts; Teamwork skills; Public Speaking abilities; Emotional skills; Empathetic; Stress management skills; Attention and concentration skills; Orientation skills; Intermediate knowledge in the human resources domain.

Digital competence

Phyton | LaTeX | Wolfram Mathematica | C Programming | Monte Carlo softwares (Pythia, Delphes, MadGraph)

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER

Levels: Basic user - Independent user - Proficient user

[Digital competences - Self-assessment grid](#)

Driving licence B, B1, Am

## Conferences & Papers

[ 05/2026 ] **Overview of the resonant production of ultraheavy scalars at the HL-LHC (talk)**

Bucharest University Faculty of Physics Meeting 2026, Magurele, România.

[05/2026] **Observability of an ultraheavy diquark decaying into vectorlike quarks at the LHC**, Daniel C. Costache, Calin Alexa, Anca M. Dinu, Ioan M. Dinu, Ioana Duminica, Matei-Stefan Filip, Gabriel C. Majeri (paper)

accepted at Phys. Rev. D. (DOI: <https://doi.org/10.1103/qxhl-4pqz>)

[01/2026] **HL-LHC sensitivity to an ultraheavy  $S_{uu}$  diquark in the  $u\bar{u}$  channel**, Matei-Stefan Filip, Calin Alexa, Daniel C. Costache, Anca M. Dinu, Ioan M. Dinu, Ioana Duminica, Gabriel C. Majeri (paper)

sent for publication at Phys. Rev. D.

[07/2025] **Diquark scalar production of a vectorlike quark pair at the LHC (talk)**

EPS-HEP 2025, Marseille, France.

[06/2025] **Ultraheavy diquark decaying into vectorlike quarks at the LHC**, Ioana Duminica, Calin Alexa, Ioan M. Dinu, Bogdan A. Dobrescu, Matei-Stefan Filip (paper)

Phys. Rev. D **111**, 115025.

[05/2025] **Diquark scalar production at the TeV scale (talk)**

Bucharest University Faculty of Physics Meeting 2025, Magurele, România.

[11/2024] **Study of ultra-heavy diquark scalar production at TeV scale (talk)**

ISAB Young Scientists Forum 2024, Magurele, Romania.

[09/2024] **Expanding the gluino exclusion limits using events with one highly energetic final state jet and missing transverse momentum**, Hammad Rasheed, Ioana Duminica (paper)

Romanian Journal of Physics, Vol. 69, No. 7-8, 2024.

[09/2024] **Study of potentially resonant production of vectorlike quarks at the HL-LHC (poster)**

European School of High Energy Physics 2024, Peebles, Scotland.

[07/2024] **Resonant production of vectorlike quarks at the HL-LHC (poster)**

42<sup>nd</sup> International Conference on High Energy Physics 2024, Prague, Czech Republic.

[05/2024] **Resonant production of vectorlike quarks at the HL-LHC (talk)**

Bucharest University Faculty of Physics Meeting 2024, Magurele, România.

[03/2024] **Status on CM Cosmics for Run 3 (talk)**

Long Lived Particle Forum 2024, CERN, Switzerland.

[11/2023] **Contribuții Științifice ale Echipei Facultății de Fizică, Universitatea din București în cadrul proiectului "Experimentul ATLAS de la LHC/ATLAS" la CERN**, Ioana Duminica, Eduard Stan (talk)

Conferința Anuală de Comunicare a Rezultatelor Cercetării la Universitatea din București – Ediția 2023, București, România.

[07/2023] **Characterisation of the Cosmic-Ray Background in the ATLAS Experiment (talk)**

21<sup>st</sup> International Balkan Workshop on Applied Physics and Materials Science, Constanța, România.

[05/2023] **A Phenomenological Study of the Diquark Scalar production (talk)**

Bucharest University Faculty of Physics Meeting 2023, Magurele, România.

[02/2023] **Development of a Cosmic-Ray Background Simulation for Run 3 (poster)**

ATLAS Week, Poster Session, CERN, Switzerland.

[06/2022] **From the Standard Model to the Minimal Supersymmetric Standard Model (talk)**

Bucharest University Faculty of Physics Meeting 2022, Magurele, România.

[10/2019] **The Basics of Gauge Theories applied to Relativistic Fields**

FARPHYS Iași, România.

[05/2018] **Methods for characterization of environmental particles**

"Physics and Modern Educational Technologies" National Conference, Iași, Romania.

[ 05/2018 ] **Metode de caracterizare a unor probe de interes ambiental**  
"Ștefan Procopiu" Essays and Scientific Researches National Contest, Piatra Neamț, Romania.

Supervising  
students

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[ 2026 ] **Supervised two Bachelor's students:**  
***A comparative study of mass reconstruction techniques for W and Z bosons in triple gauge coupling processes***, Victoria Varga, Calin Alexa, Roxana Zus, Ioana Duminica, Daniel Costache  
***Study of the Higgs boson in the  $H \rightarrow ZZ^* \rightarrow 4l$  channel with the ATLAS experiment***, Alexandru Morosanu, Calin Alexa, Roxana Zus, Ioana Duminica, Daniel Costache

**and two Master students:**

***Statistical Analysis on the Production of an Ultraheavy Diquark Scalar at the LHC***, Daniel C. Costache, Calin Alexa, Roxana Zus

***Search for Top Squark Pair Production in the 2-Body All-Hadronic Decay Channel at the LHC***, Anca M. Dinu, Calin Alexa, Roxana Zus, Matei S. Filip, Ioana Duminica

**for their theses.**

[ 2025 ] **Supervised one Bachelor's student (*Fundamental Interactions in Nature*, Mihai Dragomir, Calin Alexa, Roxana Zus)**  
**and one Master student ( $Z^0$  boson mass reconstruction at L3 vs. ATLAS using fast detector simulations**, Paul Trofin, Calin Alexa, Roxana Zus) **for their theses.**

**Other activities**

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**[ 04/2026 ] Faculty of Physics from A to Z (organizing team)**

University of Bucharest and Elementary Particle Physics Department, IFIN-HH, Magurele, Romania.

**[ 09/2025 ] European Researchers Night (organizing team)**

Elementary Particle Physics Department, IFIN-HH, Magurele, Romania.

**[ 2025-2026 ] Mentoring bachelor and master students (theses, competitions and conferences)**

University of Bucharest and Elementary Particle Physics Department, IFIN-HH, Magurele, Romania.

**[ 09/2025 ] European Researchers Night (organizing team)**

Elementary Particle Physics Department, IFIN-HH, Magurele, Romania.

**[ 09/2025 ] ATLAS TDAQ Week (organizing team)**

University of Bucharest and Elementary Particle Physics Department, IFIN-HH, Magurele, Romania.

**[ 2023-2026 ] Z-path and W-path ATLAS Masterclasses (talks&labs)**

Faculty of Physics, University of Bucharest, Magurele, Romania.

**[ 11/2024 ] Research in High-Energy Physics (talk)**

ScienceHub, Colegiul National Mihai Viteazul, Bucuresti, Romania.

**[ 09/2024 ] What is the Universe made of? HEP summer school (organizing team)**

Faculty of Physics, University of Bucharest, Magurele, Romania.

**[ 06/2024 ] Romanian High-School Students Internship Programme 2024 (organizing team)**

CERN, Switzerland.

**[ 06/2024 ] Romanian Teacher Internship Programme 2024 (organizing team)**

CERN, Switzerland.

**[ 12/2023 ] Discover the Universe with Romania @CERN Conference (organizing team)**

University of Bucharest, Romania.

**[ 11/2023 ] Romanian Internship Programme (organizing team)**

CERN, Switzerland.

**VOLUNTEERING**

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**[ 01/10/2017 – 01/07/2020 ] Volunteer at the Faculty of Physics, "Alexandru Ioan Cuza" University Iași****[ 03/2018 – 11/2020 ] Volunteer Member of The Francophone Students Association from Iași (ASFI)**