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Professor, Building Services Engineering Faculty, Technical University of Civil Engineering of Bucharest; Professeure Associée at IMT Nord Europe (Ecole des Mines de Douai).

Director of the Doctoral School of the Technical University of Civil Engineering of Bucharest

Head of Advanced Research Center for Building Physics and Ambient Quality – CAMBI

Co-chair of the Technology and Research Committee (TRC) – of the Federation of European Heating, Ventilation and Air Conditioning associations - REHVA

Member of the COVID-19 task force of the International Alliance for Indoor Environment Quality IEQ-GA, representative of IEQ-GA in the ECAP committee of the WHO, and member in the COVID-19 task force at REHVA; Member of the task force Ventilation of Hospitals at REHVA

1. DATE AND PLACE OF BIRTH: 22th August 1979, Bucharest, Romania

2. STUDIES AND DIPLOMAS:

Engineer Diploma (Bachelor of Science): 2002, (examination mark: 10/10), Technical University of Civil engineering of Bucharest, Department of Civil Engineering in Foreign Languages: French.

Bachelor's degree in law sciences: 2002, Universitatea Ecologică București, Law Faculty, specialization Legal sciences – Law

Master of Science diploma: 2003, University of La Rochelle, France, Mechanics and Civil Engineering, Energetics of the built environment

PhD Diploma: thesis title « Analyse des jets lobés en vue de leur intégration dans les unités terminales de diffusion d'air », 2007, thesis accomplished in cotutelle between the Technical University of Construction Bucharest and the University of La Rochelle, domain: Civil and mechanical engineering, specialisation: Fluid Mechanics, 2006.

Post Doctoral dissertation: 2008, University of La Rochelle, France, Mechanical and Civil Engineering Department, specialty: Experimental Fluid Mechanics

Habilitation Thesis: 2014, Technical University of Civil Engineering of Bucharest

PROFESSIONAL QUALIFICATIONS:

October 2010: Energy auditor for Buildings, Energy auditor, First degree certificate (February 2014)

December 2020: Fire safety designer, Fire safety designer certificate (February 2021)

Project verifier technically and professionally certified in the field of Thermal Installations, Level I, (December 2021)

3. PROFESSIONAL EXPERIENCE, FORMER EMPLOYERS:

**Assistant Lecturer and Researcher** (ATER – Attaché temporaire à l'Enseignement et à la Recherche) : during the academic years 2003-2007 and 2007/ spring of 2008 at the Mechanical and Civil Engineering Department, University of La Rochelle, France

**Research Engineer:** October 2007- May 2008 at LEPTIAB (Laboratory of Study of Transfer Phenomena Applied to Buildings), University of La Rochelle, France

**Researcher:** since May 2008 – Advanced Research Center for Ambiental Quality and Building Physics Building Services Department from the Technical University of Civil Engineering in Bucharest

**Lecturer:** October 2008 - September 2012 in the chair of Hydraulic, thermal and environmental building services from the Building Services Faculty of the Technical University of civil Engineering

**Associate Professor:** September 2012 - September 2021 in the chair of Hydraulic, thermal and environmental building services from the Building Services Faculty of the Technical University of civil Engineering

**Full Professor:** Since September 2021 in the chair of Hydraulic, thermal and environmental building services from the Building Services Faculty of the Technical University of civil Engineering

Teaching (undergraduate): thermodynamics, elementary fluid mechanics (course and laboratory), fluid mechanics (course and laboratory), thermal fluids laboratory, air conditioning, industrial ventilation, advanced measurement techniques for fundamental fluid mechanics, measurement techniques for fluid mechanics applied to buildings, jet flow theory.

Research contracts:

1. SAFE - Innovative seating system to reduce SARS-CoV-2 transmission on board of commercial aircrafts - PN-III-P2-2.1-PED-2021-2265, 2022-2024, (100k Euro) – Coordinator
2. „Prototyping of a multi-instrumented thermal manikin” – Ctr. Cercetare 160/2021 Institut Mines Télécom Nord Europe (50keuro)
3. PN-III-P2-2.1-PED-2021-0559, INNOVENT Innovative high-induction air diffusers, 2022-2024, (100k Euro)
4. PN-III-P2-2.1-PED-2021-1903/ Ctr. Nr. 6270/2022- Colector solar adaptiv cu materiale cu schimbare de faza nano-optimizate – nanoSUN, 2022-2024, (100k Euro)
5. Nzeb Ready - Enhancing Market Readiness For Nzeb Implementation - H2020-LC-SC3-EE-2020-2, “Stimulating demand for sustainable energy skills in the construction sector”, 2021-2023
6. DivAirCity, The power of diversity and social inclusion as a mean for reducing air pollution and achieving green urban nexux in climate neutral cities, Call: HORIZON-LC-CLA-11-2020-Innovative nature-based solutions, for carbon neutral cities and improved air quality, 2021-2025
7. XTREME - Innovative system to extend the range of electric vehicles at improved thermal comfort - PN-III-P2-2.1-PED-2019-4249, Coordinator, 2020-2022, (100k Euro)
8. BISCUIT - BISCUIT Building integrated solar crop dryer for food preservation in urban farming applications, - PN-III-P2-2.1-PED-2019-4165, 2020-2022, (100k Euro)
9. SmartMonWater -Sistem inteligent de monitorizare în timp real a calității apei, PN-III-P2-2.1-PTE-2019-0394, 2020-2022, (100k Euro)
10. World Bank Energy and Extractives Global Practice ECA region Project - Energy Efficiency Improvement through Renovation of Buildings, Romania’s buildings stock data collection and verification 2019 (10keuro)
11. CIA-CLIM, Intelligent buildings adaptable to the effects of climate change, PN-III-P1-1.2-PCCDI-2017-0391, 2018-2021, (1000 kEuro)
12. CONTUR, Emerging technologies for counteracting effects induced by turbulent flows of fluid media PN-III-P1-1.2-PCCDI-2017-0868, Responsible of UTCB team, (till 1.03.2019), 2018-2021, (1000 kEuro)
13. PHANTOM - Passive flow control for heat and mass transfer enhancement of impinging jets PN-III-P4-ID-PCE-2016-0758, Coordinator, 2017-2019, (200 kEuro)
14. QUEST - Advanced air diffusion system of the crew quarters for the ISS and deep space habitation systems, STAR-CDI-C3-2016-577, Coordinator, 2017-2019, (450 kEuro)
15. SMARTSENSE - Real time SMART application for urban air quality management respecting the SENSITIVE categories of population, PN-III-P2-2.1-PED-2016-1285 (150 kEuro), Coordinator, 2017-2018 (150 kEuro)
16. SOLECT - Environment improvement of Sludge dewatering from the wastewater treatment system of SEAU Glina by Optimizing the Local Effluent Capture and Treatment, PN-III-P2-2.1-BG-2016-0158 (100 kEuro)
17. SCOPE-intelligent Solar Collector with Phase change materials intEgration– PN-III-P2-2.1-PED-2016-1154 (100 kEuro)
18. SWAN34 Small Ducted Wind Turbine Equipped with Passive Flow Control Devices - PN-III-P2-2.1-PED-2016-0631 (100 kEuro)
19. AFDPA - Antiflutter Demonstrator with Piezoelectric Actuation, Coordinator, PN-II-PT-PCCA-2013-4 (350 kEuro)
20. INSIDE - Innovative strategies of HVAC systems for high indoor environmental quality in vehicles PN-II-PT-PCCA-2013-6 (350 kEuro)
21. EQUATOR: Advanced strategies for high performance indoor Environmental QUALiTy in Operating Rooms- PN-II-PT-PCCA-2011-3.2-0512, 2012-2016, Coordinator (750 kEuro)
22. INADEVA: INtelligent Air Diffusion for healthy environments: advanced strategies and EVALuation methods - PN-II-ID-2011-3-0835, 2011-2016, Coordinator (350 kEuro)
23. Terminal inovative devices for HVAC air diffusion – PNII RP CNCSIS 6, 2008- 2010, Coordinator (150 kEuro)
24. HAM: Integrated HEAT-AIRFLOW-MOISTURE modeling within enclosures - experimental validation, PN-II-ID-JRP-RO-FR-2012-0071, 2013-2015, (350 kEuro)

25. Optimization of Indoor Environmental Quality & Energy Efficiency in educational facilities using a multi-criteria decision approach PN-II-RU-TE-2012-3-0108, 2013-2015, (200 kEuro)
26. IEQ: Atmospheric pollutants transfer indoors. Tools for indoor pollution level prediction and occupants - PN-II-RU-TE-2011-3-209, 2011-2013, (200 kEuro)
27. MAACH : Advanced methods of analysis and control for hemodynamics with application in peripheral vascular surgery, 2008 –2011, CNMP grant (750 kEuro)
28. ECOLOC: Environmental management in urban residential areas in the context of climate change, 2008 –2011, CNMP r grant, (750 kEuro)
29. FLUBAT: Suivi et compréhension expérimental des FLUX d'air dans les BATiments – projet ANR (1500 kEuro) coordinatrice du projet: Dr. Amina Meslem, Université de La Rochelle
30. INDUC : Climatisation à haute induction pour les voitures ferroviaires, 2006- 2008, en cooperation avec Alstom Transport, financé par le FEDER, le gouvernement français et la Region Poitou Charentes, Project coordinator: Dr. Amina Meslem, Université de La Rochelle
31. INDUBAT : Climatisation à haute induction pour le bâtiment, 2005-2009, en coopération avec CIAT, financé par ANR et ADEME, coordinatrice du projet: Dr. Amina Meslem, Université de La Rochelle
32. VAICTEUR AIR<sup>2</sup> - Pour un air sain confortable et économe dans le bâtiment, 2008-2013, financé par OSEO, coordonateur du projet: CIAT
33. Mentor for the Post-doctoral Project PD 2011 - Proiect PN-II-RU-PD-2011-3-0099 Title: Fluid dynamics analysis for innovative personalized ventilation diffusers for automotive and building applications of Dr. Florin BODE

#### Other educational or institutional development contracts

1. EU-CONEXUS - European University for Smart Urban Coastal Sustainability; 612599-EPP-1-2019-1-FREPPKA2-EUR-UNIV 2019-2023 (membru PhD – PC)
2. EU-CONEXUS RESEARCH FOR SOCIETY - EU-CONEXUS-RFS Call: H2020-IBA-SwafS-Support-1-2020 (Support for the Research and Innovation Dimension of European Universities), 2021-2025 (WP4 team member)
3. CNFIS-FDI-0125-2018 - Instrumente suport pentru cresterea calitatii rezultatelor stiintifice si promovarea deontologiei si eticii academice la nivelul IOSUD – UTCB – INSTRUCT 1 – team member
4. CNFIS-FDI-0354-2019 - INSTRUCT 2 – team member
5. CNFIS-FDI-0370-2020 - INSTRUCT 3 – team member
6. CNFIS-FDI-0370-2021 - INSTRUCT 4 – team member
7. CNFIS-FDI-0397-2022 - INSTRUCT 5 – director proiect
8. EU-CONEXUS - European University for Smart Urban Coastal Sustainability; 612599-EPP-1-2022-1-FREPPKA2-EUR-UNIV 2012-2026 (coordonator WP4 PhD – PC)

#### Technical expertise:

Participation in the contract "Expertise services for auditing and reviewing the system of technical regulations within the project - "Systematization of legislation in the field of spatial planning, urbanism and constructions and strengthening the administrative capacity of specialized structures in central public institutions with responsibilities in the field", SIPOCA code 50, Contracting authority: Ministry of Development, Public Works and Administration, Executor: Technical University of Constructions Bucharest, as:

- Coordinator of the **Norm for the design, execution and operation of ventilation and air conditioning installations Indicative I 5 – 2022**
- Coordinator of the thermal installations part (HVAC) for the **Norm on the design and verification of hospital constructions and installations, Indicative NP 015-2022**
- Coordinator of the thermal installation part (HVAC) for the **Norm regarding the design of polyclinic dispensaries based on the performance requirements Indicative NP 021 -2022**, Indicative NP 015-2022
- Coordinator of the thermal installation part (HVAC) for the **Norm on the design, realization and operation of constructions for schools and high schools, Indicative NP 010-2022**
- Coordinator of the thermal installation part (HVAC) for the **Norm on the design, realization and operation of constructions for kindergartens for children, Indicative NP 011-2022**
- Member of the work team on the **Norm for parking design, Indicative NP 024-2022**

In 2019, I participated in the project team of World Bank Energy and Extractives Global Practice ECA region Project - Energy Efficiency Improvement through Renovation of Buildings, Romania's buildings stock data collection and verification.

A list of representative technical projects is given below:

- "Construction of pavilion for the preparation and serving of the table D + P + mezzanine, ground floor guard

cabin, metal canopies parking lots, roadways, partially covered terraces arrangement, green area, replacement of fencing and existing networks – Maramures Objective - Olimp" – HVAC installations, Defoaming installations, Plumbing and fire extinguishing installations

- "CAVE system" – Ventilation and air conditioning system for ambient control of the virtual reality system at Renault Technologie Roumanie

- Optimization of working conditions, general ventilation plant with discharged air treatment Glina Apa Nova advanced dewatering hall, SEAU, Romania

- Optimization of working conditions, local ventilation system with discharged air treatment Glina Apa Nova advanced sea dewatering hall, Romania

- Rehabilitation and modernization of the water treatment plant – Ventilation and dehumidification plant, ARCUDA, Joița, Romania

- Optimization of working conditions, general ventilation system with air treatment Project Bad Vilbel – Therme Grup ctr.1/2022

- Thermal bridges and building envelope optimization and thermal load calculations cooling and heating, calculations for compliance with nZEB – for example within the project of modernization and thermal rehabilitation of schools in sector 6 within the Program of Energy Efficiency of Public Buildings in sector 6: Construction after school in the premises of Secondary School no. 117, after school construction within St. Andrew's Secondary School, Construction of kindergarten building in the kindergarten nr. 274th

- Technical consultancy as an expert in optical metrology for Dantec Dynamics SAS Denmark – June 2008 - present

**Invited lectures :** • *Experimental techniques in ventilation applications - A state of the art of modern investigation methods applied to flows in buildings*, a key note lecture at GRASMECH' 2009, 26-27 November 2009 in Brussels at Royal Military Academy

• *An overview of Micro Particle Image Velocimetry and applications*, a key note lecture at the first International Summer School of Rheology organized by the Romanian Society of Rheology, August 2010, Cluj-Napoca.

• *Measuring techniques of velocity distributions in liquids*, a key note lecture at the third International Summer School of Rheology organized by the Romanian Society of Rheology, August 2017, Gura Humorului.

• *Ventilation strategies for improving air distribution in vehicles and other confined spaces*, invited lecture at Aalto University, December 2018

• *Thermal Comfort in occupied spaces - changing the paradigm for energy efficiency*, invited lecture at International Conference on Energy, Environment and Economics (ICEEE2020), August 2020

• *Aerial transmission of SARS-COV-2 - The role of HVAC systems during COVID-19 times: source control, ventilation, air distribution*, ClimaMed 2021, May 2021

• *Role of HVAC systems during COVID-19 times: source control, ventilation, air distribution*, invited lecture at the international Conference PEPM 2022, September 2022

**50 WOS Journal Papers (from 80), 30 WOS Conference Proceedings, 100 Conference proceedings**  
**Hirsch Index – Web of Science: 15, Scopus: 18, Google Scholar: 22**

#### **Selected articles:**

1. Nastase, A. Meslem, V. Iordache, I. Colda, Lobed grilles for high mixing ventilation - An experimental analysis in a full scale model room, Building and Environment, Volume 46, Issue 3, March 2011

2. V. Iordache, I. Nastase, A. Damian, I. Colda, Average permeability measurements for an individual dwelling in Romania, Building and Environment, Volume 46, Issue 5, May 2011, Pages 1115-1124

3. I Udrea, C Croitoru, I Nastase, R Crutescu, V Badescu, A new adaptive thermal comfort model for the Romanian climate (vol 173, pg 151, 2020) Proceedings of the institution of civil engineers-engineering sustainability

4. AS Bejan, C Teodosiu, CV Croitoru, T Catalina, I Nastase, Experimental investigation of transpired solar collectors with/without phase change materials, Solar Energy 214, 478-490, 2020

5. MR Georgescu, A Meslem, I Nastase, Accumulation and spatial distribution of CO2 in the astronaut's crew quarters on the International Space Station, Building and Environment 185, 107278, 2020

6. C Croitoru, I Nastase, F Bode, M Sandu, Assessment of virtual thermal manikins for thermal comfort numerical studies. Verification and validation, Science and Technology for the Built Environment, 1-17, 2021

7. MR Georgescu, A Meslem, I Nastase, F Bode, An alternative air distribution solution for better environmental quality in the ISS crew quarters, accepted to The International Journal of Ventilation, 2021

8. L Tacutu, F Bode, I Nastase, C Croitoru, A Dogeanu, Experimental and numerical study on the thermal plumes of a standing and lying human in an operating room, Science and Technology for the Built Environment, 1-17, 2021
9. I Nastase, P Danca, F Bode, C Croitoru, L Fehete, M Sandu, CI Coşoiu, A regard on the thermal comfort theories from the standpoint of Electric Vehicle design—Review and perspectives, Energy Reports 8, 10501-10517, 2022
10. DD Ion-Guță, I Ursu, A Toader, D Enciu, PA Dancă, I Nastase, CV Croitoru, M.Sandu, Advanced thermal manikin for thermal comfort assessment in vehicles and buildings, Applied Sciences 12 (4), 18263, 2022

