



## Europass Curriculum Vitae



### Personal information

First name(s) / Surname(s) **Bunea, Florentina**  
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Date of birth 15.06.1976

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### Desired employment

INCDIE ICPE-CA / Scientific research and Scientific research II, Efficiency in Energy Conversion and Consumption Department

### ResearcherID ORCID

<http://www.researcherid.com/rid/B-9291-2011>  
<http://orcid.org/0000-0002-1291-1210>

### Work experience

Dates	2003 - present
Occupation or position held	Scientific research II
Main activities and responsibilities	Research activities, Project management, Project proposals
Name and address of employer	National Institute for R&D in Electrical Engineering ICPE-CA, Splaiul Unirii 313, Bucharest
Type of business or sector	Research, Development and Innovation in Electrical Engineering
Dates	2002 - 2014
Occupation or position held	Associated professor, Hydraulics, Hydraulic Machinery and Environmental Engineering Department
Main activities and responsibilities	Didactic activities (theoretical and practical applications of Fluid Mechanics)
Name and address of employer	University <i>Politehnica</i> of Bucharest
Type of business or sector	University education
Dates	2000 - 2002
Occupation or position held	Teacher
Main activities and responsibilities	Didactic activities (physics, technical design)
Name and address of employer	<i>Nicolae Vărtosu</i> High School from Bucharest
Type of business or sector	School education

### Education and training

Dates	September 2001 – November 2005
Title of qualification awarded	PhD engineering diploma in the field of Power Engineering
Principal subjects/occupational skills covered	Doctoral thesis: <i>The real fluid flow with application in the flow measurement</i>
Name and type of organisation providing education and training	University <i>Politehnica</i> of Bucharest, Faculty of Power Engineering
Level classification	ISCED 6 (International Standard Classification of Education)
Dates	September 1996 – Julie 2001

Title of qualification awarded | Engineer / Hydraulics and Environmental Engineering  
 Principal subjects/occupational skills covered | General and specific knowledge concerning hydraulics, hydraulic machinery and environmental engineering  
 Name and type of organisation providing education and training | University *Politehnica* of Bucharest, Faculty of Mechanical Engineering  
 Level classification | ISCED 5 (International Standard Classification of Education)

Foreign language(s)  
 Self-assessment  
 European level (\*)

		Understanding				Speaking				Writing	
		Listening		Reading		Spoken interaction		Spoken production			
French	C1	Effective operational proficiency	C1	Effective operational proficiency	B1	Vantage	B1	Vantage	C1	Effective operational proficiency	
English	B2	Vantage	C1	Effective operational proficiency	B1	Vantage	B1	Vantage	B2	Vantage	

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

- Social skills and competences
- Team spirit and adaptability obtained in the context of collaboration in various research teams;
  - Communication skills developed from participation in various scientific events;
  - Entrepreneurial skills proven through collaboration protocols with other national and international institutions, partnerships with the economic environment, opening of new research directions;
  - Organisational skills;
  - Good experience of project and team management resulting from the coordination of research projects and their implementation.
- Technical skills and competences
- Laboratory and site measurements of velocity, flow rate, pressure and noise level; usage of Doppler 3D, ADV velocimeter; Particle Image Velocimetry, software for data monitoring and recording; pressure and flow rate acquisition, water quality, etc.
  - Good experience in using measuring and monitoring equipments in hydraulic and environmental protection fields.
- Computer skills and competences
- Good knowledge of use of applications: Microsoft Office;
  - Knowledge of Matlab, Computational Fluid Dynamics, Autocad;
  - Various applications: Adobe Master Collection (Photoshop, Illustrator, Acrobat)
- Other skills and competences
- Reviewer for international journals, classification boards for PhD thesis, master and license Uncertainty measurement evaluation Certificate, 2007
  - Management of research projects diploma, granted by The Education and Research Ministry of Romania Certificate, no. 6062, 2006
  - Expert reviewer for competence and scientific attitude in evaluating the research activities of higher education for years 2008 and 2010, granted by The Education and Research Ministry of Romania Certificate, no. 154/2009 and no. 165/2011
  - Pedagogy Certificate
  - Category B vehicle

**Additional information**

- Over 80 published scientific papers from which 20 ISI and 21 BDI
- 34 research projects from which on 7 of them, project manager
- 3 patent, 4 patent appl., 2 product certification and 8 experimental/functional models
- 4 books and 3 book chapters
- 12 medals at international and national exhibitions as well: EUREKA 2016 and 2017, Geneva 2017, EUROINVENT2017, PROINVENT2015, 2017, INVENTIKA 2014, 2009, MCI 2017, CEEX

**Annexes** | List of papers and research contracts



## ***Annex 1. List of relevant papers and projects***

### **Relevant Papers**

1. **Bunea F.**, Nedelcu A, Ciocan G.D., 2017, "Prediction of water aeration efficiency in high turbulent flow", *Desalination and Water Treatment*, vol. 85, p. 55-62, DOI: 10.5004/dwt.2017.20774, ISSN 1944-3994, *Impact Factor* 1.631, **WOS:000412882200007**
2. Murgan I., **Bunea F.**, Ciocan G.D., Experimental PIV and LIF characterization of a bubble column flow, 2017, *Flow Measurement and Instrumentation*, 54, 2017, p. 224–235, DOI 10.1016/j.flowmeasinst.2017.02.004, *Impact Factor* 1,203, **WOS:000401377500024**,
3. **Bunea F.**, Ciocan G.D., Nedelcu A., Bucur D.M., Dunca G., Chihaiia R., 2017, *Experimental setup for the study of new aeration devices in hydraulic turbines*, *Environmental Engineering and Management Journal*, May 2017, Vol.16, No. 5, p. 1033-1040, ISSN:1582-9596, *Impact Factor* 1,096, **WOS:000409069600001**
4. Pîslaru–Dănescu L., Morega A.M., Morega M., **Bunea F.**, Popa M., Babutanu, C.A., 2017, *A new type of linear magnetostrictive motor*, *Electrical Engineering Journal, Archiv für Elektrotechnik*, Springer, June 2017, Vol. 99, Issue 2, pp 601–613, ISSN: 0948-7921, eISSN: 1432-0487, *Impact Factor* 0,662, DOI: 10.1007/s00202-016-0388-z, **WOS:000401692600014**
5. Bucur D.M., Dunca G., **Bunea F.**, Călinoiu C., 2017, Aeration process influence over the operation of a small hydro turbine - generator unit, 10th International Symposium On Advanced Topics In Electrical Engineering (ATEE), 23-25 March 2017, Bucharest, Publisher: IEEE, DOI: 10.1109/ATEE.2017.7905045, **WOS:000403399400145**
6. Chihaiia R. A., **Bunea F.**, Oprina G., El-Leathay L. A., Power Prediction Method Applicable to Horizontal Axis Hydrokinetic Turbines, 2017 International Conference on ENERGY and ENVIRONMENT (CIEM), 19-20.10.2017, Publisher: IEEE, DOI: 10.1109/CIEM.2017.8120825, eISBN: 978-1-5386-3943-6, in press **WOS**
7. Digulescu A., Murgan I., **Bunea F.**, Ciocan G., Bucur D., Dunca G., Candel I., Ioana C., 2016, *Cavitating vortex characterization based on acoustic signal detection*, IOP Conf. Series: Earth and Environmental Science 49 (2016) 082009, IOP Publishing, 28th IAHR Symposium on Hydraulic Machinery and Systems, Grenoble, July 4 - 8th, DOI:10.1088/1755-1315/49/8/082009, ISSN: 1755-1307, **WOS:000400156200114**
8. Murgan I., Candel I., Ioana C., Digulescu A., **Bunea F.**, Ciocan G. D., Anghel A., 2016, *Flow velocity profiling using acoustic time of flight flow metering based on wide band signals and beamforming techniques*, IOP Conf. Series: Earth and Environmental Science 49 (2016), 28th IAHR Symposium on Hydraulic Machinery and Systems, Grenoble, July 4-8th, DOI:10.1088/1755-1315/49/6/062003, ISSN: 1755-1307, **WOS:000400156200062**
9. Digulescu A., Ioana C., **Bunea F.**, Nedelcu A., Candel I., Vasile G., Serbanescu A., 2016, *Cavitation characterization using wide band signals in an acoustic active sensing system*, OCEANS'16 MTS/IEEE Monterey, California, USA, 19 - 22 Sep 2016, DOI: 10.1109/OCEANS.2016.7761114, Publisher: IEEE, ISBN: 978-1-5090-1537-5, **WOS:000399929000120**
10. Chihaiia R. A., El-Leathay L.A., Nicolaie S., **Bunea F.**, Oprina G., 2016, Study Regarding the influence of Orifice Diameter on an Ecological Water Intake, Energy and Clean Technologies Conference Proceedings, SGEM 2016, Vol. 1, Book Series: International Multidisciplinary Scientific GeoConference-SGEM, 28 iunie - 6 iulie 2016, Albena, Bulgaria, p. 669 - 676, ISBN 978-619-710-63-6, ISSN 1314-2704, **WOS:000391348600087**
11. Digulescu A., Teodor P., Candel I., Ioana C., **Bunea F.**, Dunca G., Bucur D. M., Serbanescu A., 2015, *Rotational Vortex Rope Detection Using Recurrence Plot Analysis*, Military Technical Academy Review (MTA), Vol. XXV, No. 1, p. 5-15, Military Technical Academy Publishing House Bucharest, March 2015, ISSN 1843-3391
12. Candel I., **Bunea F.**, Dunca G., Bucur D.M., Ioana C., Reeb B., Ciocan G.D., 2014, *Detection of cavitation vortex in hydraulic turbines using acoustic techniques*, 27th IAHR Symposium on Hydraulic Machinery and Systems, 22-26 sep. 2014, Montreal, Canada, IOP Conference Series - Earth and Environmental Science, vol. 22, Iss. 5, ISSN: 1755-1307, DOI:10.1088/1755-1315/22/5/052007, **WOS:000347441900140**
13. **Bunea F.**, Cazacu M.D., *The real fluid flow through channels and pipeline* (in Romanian Curgerea fluidului real prin canale si conducte), 2014, 81 p., Ed. AGIR, ISSN 978-973-720-520-9



14. **Bunea F.**, Ciocan G.D., Bucur D.M., Dunca G., 2014, *Aeration solution of water used by hydraulic turbines to respect the environmental policies*, Electrical and Power Engineering, 2014 International Conference and Exposition on, IEEE, p. 1015-1020, DOI 10.1109/ICEPE.2014.6970062, ISSN 978-1-4799-5849-8 ISI, WOS:000353565300185
15. Digulescu A., Teodor P., Candel I., **Bunea F.**, G. Dunca, Bucur D., Ioana C., 2014, *On the vortex parameter estimation using wide band signals in active acoustic system*, OCEANS 2014 - TAIPEI, China, 7-10 Apr. 2014, p. 1 – 5, IEEE Conference Publications, ISBN: 978-1-4799-3645-8, DOI: 10.1109/OCEANS-TAIPEI.2014.6964552, **WOS**:000412588000267
16. Ciocan GD, **Bunea F\***, Houde S., Deschênes C., 2012, *Measurement technique for air-water disperse system study*, University Politehnica of Bucharest Scientific Bulletin, Ed. Politehnica Press, serie D, p. 115 - 124, vol. 74, no. 1, ISSN 1454-2358
17. **Bunea F.**, Bucur D.M., Dumitran G., Ciocan G., 2012, *Water Quality in Hydroelectric Sites*, Book title: Ecological Water Quality - Water Treatment and Reuse, Dr. Voudouris (Ed.), Croatia, p. 391-408, ISBN 978-953-51-0508-4, InTech, DOI 10.5772/32078,
18. **Bunea F.**, Ciocan G.D., Oprina G., Băran G., Băbuțanu C.A., 2010, *Hydropower impact on water quality*, Environmental Engineering and Management Journal, the Workshop "Water Quality", 9-11 september 2010, Bucharest Romania, Vol. 9, No. 11, p. 1459-1464, ISSN 1582-9596, *Impact Factor* 1,435, **WOS**:000285557900001
19. Bucur D.M., **Bunea F\*** (autor corespondent)., Ciocan G.D., Băran G., Isbășoiu E.C., 2010, *Water parameters evolution in a hydroelectric site*, Environmental Engineering and Management Journal, Vol. 9, No. 11, p. 1539-1544, ISSN 1582-9596, **WOS**:000285557900015, *Impact Factor* 1,435
20. **Bunea F.**, Houde S., Ciocan G.D., Oprina G., Baran G., Pincovchi I., 2010, *Aspects concerning the quality of aeration for environmental friendly turbines*, 25th IAHR2010 Symposium on Hydraulic Machinery and Systems, published by the Institute of Physics (IoP), IOP Conf. Series: Earth and Environmental Science, 12 (2010) 012035, **WOS**:000327474800011,
21. **Bunea F.**, Oprina G., Ciocan G.D., Băran G., Ilie C., Pincovschi I., 2009, *Aeration parameters optimization for an imposed energy consumption*, Acta Technica Napocensis, Technical University of Cluj-Napoca, series: Applied Mathematics and Mechanics, Nr. 52, Vol.II, p. 279-284, ISSN 1221-5872,
22. Băran G., **Bunea F.**, Oprina G., 2007, *On Cavitation and Cavitation Damage at Butterfly Valves*, 2nd IAHR International Meeting of the Workgroup on Cavitation and Dynamic Problems in Hydraulic Machinery and Systems, Scientific Bulletin of the Politehnica University of Timisoara, Transactions on Mechanics, Tom 52 (66), 24-26 October 2007, p. 41-46. ISSN 1224-6077
23. **Bunea F.**, Oprina G., Lazaroiu Gh., Babutanu C.A., Pincovschi I., 2007, *Technical and economical aspects of the new waste water treatment technologies*, Proceeding of the 5<sup>th</sup> International Conference Management of Technological Changes 2007, Alexandroupolis, Greece, on 25-26 August 2007, v. I, ISBN 978-960-8932-1-2, **WOS**:000252696000056
24. **Bunea F.**, Cazacu M.D., 2005, *Numerical solve of permanent laminar two-dimensional flow at the entrance into a channel*, UPB Sci. Bull., Series D, Vol. 67, No. 4, p. 69-77, 2005, ISSN 1454-2358.

### Patents

1. **Bunea F.**, Ciocan G.D., Nedelcu A, Bucur D.M., Dunca G., Codescu S., Aeration system of water passing through hydraulic turbines, Patent applicant OSIM no. A/00688 / 20.09.2017, BOPI nr.2/2018
2. **Bunea F.**, Ciocan G.D., Test bench for study of rotational biphasic flow study with adverse pressure gradient, Patent application registration, OSIM no. A/00704/29.09. 2015. Two letters of interest to acquire the non-exclusive right in order to use this patent, was receive Winning the gold medal at: EUREKA, Barcelona, 5 may 2017 and Salon International des Inventions Genève, 31 mars 2017; Other awards at PRO INVENT, Cluj Napoca, martie 2017 and National Exhibition of the Romanian Inventions 2017
3. **Bunea F.**, Oprina G., Baran G., Experimental setup for the study of the bubble diffusers hydrodynamic performance, Patent RO 125997 B1, 28.02.2012, Winning the bronze medal at Salon of Invention INVENTICA 2009.



4. Pîslaru-Dănescu L., Morega A.M., Morega M., Lipan L.C., **Bunea F.**, Sonic magnetostrictive motor with electronic driving module, Patent RO 129685 / 2016, Winning the gold medal at INVENTIKA, 15-18 October 2014, gold medal at PRO INVENT 2015, 25-27 March, Cluj-Napoca and Silver Medal, Eureka, Brussels, 19 nov.2016
5. Pîslaru-Dănescu L., Popa M., **Bunea F.**, Chihaia R.A., Morega A.M., Morega M., Gabor D., Magnetostrictive linear motor, Patent application OSIM A00879/2014, Silver medal at EUREKA, Barcelona, 5 may 2017; Gold medal at PRO INVENT 2017
6. Pîslaru-Dănescu L., Popa M., Ilie C.I., Chihaia R.A., Băbulanu C.A., Nicolaie S., **Bunea F.**, Stoian F.D., Holotescu S., Marinică O.M., Morega A.M., Morega M., Dumitru J.B., Popa N.C., Planar transformer with magnetic nanofluid, patent application OSIM no. A 2016 00713/2016, Gold medal at EURO INVENT 2017
7. Oprina G., Ilie C, Popa M., Baran G., **Bunea F.**, Simulator determining optimum parameters of containers for transportation of aquatic animals, patent application OSIM nr. A/00977/14.10.2010

### **Organizing relevant events**

Workshop Study Session (WSS1) - *Regional Cooperation Between Scientific Organizations and Universities Session*, 21 - 26 June 2014, organized by INCDIE ICPE –CA in collaboration with World Energy Council CNR-CME, in the forum FOREN 2014, at the Palace of Parliament, Bucharest.

Workshop ECOTURB, 14 September 2017. Event to promote research results *Innovative aeration system of the water used by hydraulic turbines, for preservation of the aquatic life*. Participation of both the scientific and economic environment interested in the sustainable development of the hydropower sector.

### **Relevant Research Contracts**

35 Research Contracts (25 national projects, 3 international projects, 5 consulting projects) of which 8 as project manager

1. *Innovative aeration system of the water used by hydraulic turbines, for preservation of the aquatic life*, Acronym ECOTURB, competitia PN II-PT-PCCA-2013-4-0814, UEFISCDI, ctr. 88/2014-2017, **Project Manager**,
2. *Induced axial-symmetric flows*, CNCSIS IDEAS, ID\_25, contract 232/2007-2010, **Project Manager**
3. *Technical assistance and operation of the free surface channel in order to obtain the velocity profiles using acoustic sensors*, contract. No. 3566/04.08.2015, pursuant to quotation 2942/10.07.2015, Employer: SARL SIGITEC, France, **Project Manager**
4. *The fluids flowing in flow meters and their calibration devices*, TD, Contract no. EN 060401, CNCSIS - 454/2004-2005, **Project Manager**

