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Diana Maria Bucur, PhD

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Education

- Oct 2004 – Jul 2011* **Polytechnic University of Bucharest**
Phd, Power Engineering
Bucharest, Romania
- Oct 2003 – Jul 2004* **Polytechnic University of Bucharest**
Msc, Hydraulics and Hydropower Engineering
Bucharest, Romania
- Oct 1998 – Jun 2003* **Polytechnic University of Bucharest**
Licence, Hydropower Plants
Bucharest, Romania

Thesis

Research Experience

- Feb 2016 – present* **Associate Professor**
Polytechnic University of Bucharest, Department of Hydraulics, Hydraulic
Equipment and Environmental Engineering
Bucharest, Romania

Statistics

- RG Score* 15.75
- Publications* 60
- Reads* 14,355
- Citations* 104
- Awards & Grants**
- Feb 2004* Scholarship: Erasmus

Skills & Activities

Skills Renewable Energy, Power Systems, Mechanical Engineering, Energy, Engineering Education, Energy Efficiency, Environmental Engineering, Industrial Engineering, Engineering, Applied and Computational Mathematics, Civil Engineering, Fluid Mechanics, Fluid Flow, Numerical Modeling, Turbomachinery, fluid machi, transitory flow, Vibration, Finite Element Method, Hydraulics, Water Quality, Environment, Engineering Thermodynamics, Thermal Engineering, Computational Fluid Dynamics, CFD Simulation, Numerical Simulation, Turbulence Modeling, CFD Coding, Computational Fluid Mechanics, Fluid Turbulence, Convection, Engineering Thermophysics, Industrial Technology, Turbulence, FLUENT, Experimental Fluid Mechanics, Numerical Analysis, Modeling and Simulation, Aerodynamics, Hydrodynamics, Computational Simulation, Heat Exchangers, Power Plants, Two Phase Flow, Air, Piping, Object Tracking, Applied Thermodynamics, Vortex, Ultrasonics, Electrics, Rivers, IT Systems, Flow, Turbulent Flow, Computer Science and Engineering

Languages English, French

Scientific Memberships

Interests

Publication Highlights

Books

Eugen Constantin Isbășoiu, Diana Maria Bucur: *Fluid Mechanics*. 01/2011; A.G.I.R. Publishing house., ISBN: 978-973-720-366-3

Book Chapters

Diana Maria Bucur, Georgiana Dunca, sorin draghici: *HYDROPOWER SITES DEVELOPED WITHIN INTELLIGENT POWER MICROSYSTEMS*. Intelligent energy system in protected areas, 01/2017: pages 73-87; PERFORMANTICA., ISBN: 978-606-685-499-3

Georgiana Dunca, Diana Maria Bucur, draghici sorin: *ANALYSIS OF THE HYDRAULIC SYSTEM OPERATION DURING VARIOUS STEADY FLOW REGIMES*. Intelligent energy system in protected areas, 01/2017: pages 89-102; PERFORMANTICA., ISBN: 978-606-685-499-3

Bunea Florentina, Bucur D. M., Dumitran G., Ciocan G.D.: *Water Quality in Hydroelectric Sites*. Ecological Water Quality - Water Treatment and Reuse, 05/2012: chapter Water quality in hydroelectric sites: pages 391-408; Intech (Open Access Publisher)., ISBN: 978-953-51-0508-4, DOI:10.5772/32078

Journal Publications

- R. G. Iovănel, D. M. Bucur, M. J. Cervantes: *Study on the Accuracy of RANS Modelling of the Turbulent Flow Developed in a Kaplan Turbine Operated at BEP. Part 1 - Velocity Field*. Journal of Applied Fluid Mechanics 09/2019; 12(5):1449-1461., DOI:10.29252/jafm.12.05.29704
- Reza Maddahian, Michel J. Cervantes, Diana M. Bucur: *Numerical investigation of entrapped air pockets on pressure surges and flow structure in a pipe*. Journal of Hydraulic Research 04/2019; DOI:10.1080/00221686.2019.1579112
- R G Iovănel, D M Bucur, G Dunca, M J Cervantes: *Numerical analysis of a Kaplan turbine model during transient operation*. IOP Conference Series Earth and Environmental Science 03/2019; 240(2):022046., DOI:10.1088/1755-1315/240/2/022046
- D M Bucur, G Dunca, F Bunea, G D Ciocan: *Experimental analysis of the operation of a small Francis turbine equipped with an innovative aeration device*. IOP Conference Series Earth and Environmental Science 03/2019; 240(4):042010., DOI:10.1088/1755-1315/240/4/042010
- Sanda-Carmen Georgescu, Andrei-Mugur Georgescu, Remus Alexandru Madularea, Diana Maria Bucur, Georgiana Dunca: *Efficient chlorination schedule for a water distribution network with multiple pumping stations*. Environmental engineering and management journal 05/2017; 16(5):1071-1079., DOI:10.30638/eemj.2017.110
- Diana Maria Bucur, Costin Ioan Cosoiu, Raluca Gabriela Iovanel, Alina Alexandrina Nicolae, Sanda-Carmen Georgescu: *Assessing the Operation of the Cooling Water System of a Hydro-Power Plant Using EPANET*. Energy Procedia 03/2017; 112:51-57., DOI:10.1016/j.egypro.2017.03.1058
- Florentina Bunea, Gabriel Dan Ciocan, Adrian Nedelcu, Diana Maria Bucur, Georgiana Dunca, Rare. Chihaiia: *Experimental setup for the study of new aeration devices in hydraulic turbines*. Environmental engineering and management journal 01/2017; 16(5):1033-1040., DOI:10.30638/eemj.2017.105
- Diana Maria Bucur, Georgiana Dunca, Michel J Cervantes: *Maximum Pressure Evaluation during Expulsion of Entrapped Air from Pressurized Pipelines*. 01/2017; 10(1):11-20., DOI:10.18869/acadpub.jafm.73.238.26313
- Diana Maria Bucur, Georgiana Dunca, Sanda-Carmen Georgescu, Andrei-Mugur Georgescu: *Water flow around a flapping foil: Preliminary study on the numerical sensitivity*. UPB Scientific Bulletin, Series D: Mechanical Engineering 12/2016; 78(4):175.
- A. Digulescu, I. Murgan, I. Candel, F. Bunea, G. Ciocan, D.M. Bucur, G. Dunca, C. Ioana, G. Vasile, A. Serbanescu: *Cavitating vortex characterization based on acoustic signal detection*. IOP Conference Series Earth and Environmental Science 11/2016; 49(8):082009., DOI:10.1088/1755-1315/49/8/082009
- Georgiana Dunca, Raluca Gabriela Iovănel, Diana Maria Bucur, M.J. Cervantes: *On the Use of the Water Hammer Equations with Time Dependent Friction during a Valve Closure, for Discharge Estimation*. Journal of Applied Fluid Mechanics 07/2016; 9(5):2427-2434., DOI:10.18869/acadpub.jafm.68.236.25332
- R.G. Iovănel, G. Dunca, D.M. Bucur, V.N. Panaitescu, M.J. Cervantes: *Numerical simulation of the flow through a Kaplan draft tube*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2016; 78(4):215-224.

- R. Roman, G. Dunca, D.M. Bucur, M. Cervantes, V.N. Panaitescu: *Added properties effect in hydraulic turbines*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2016; 78(4):225-235.
- L.I. Pitorac, D.M. Bucur, G. Dunca, M.J. Cervantes: *Modeling transient multiphase flow in pipeline*.
- Andrei-Mugur Georgescu, Sanda-Carmen Georgescu, Costin Ioan Cosoiu, Liviu Hasegan, Anton Anton, Diana Maria Bucur: *EPANET Simulation of Control Methods for Centrifugal Pumps Operating under Variable System Demand*. Procedia Engineering 09/2015; 119(1):1012., DOI:10.1016/j.proeng.2015.08.995
- Georgiana Dunca, Diana Maria Bucur, Michel J. Cervantes, Radu Popa: *Discharge evaluation from pressure measurements by a genetic algorithm based method*. Flow Measurement and Instrumentation 04/2015; 45., DOI:10.1016/j.flowmeasinst.2015.04.005
- Dingulescu Angela, Petrut Teodor, Candel Ion, Ioana Cornel, Bunea Florentina, Dunca Georgiana, Bucur Diana Maria, Serbanescu Alexandru: *Rotational Vortex Rope Detection Using Recurrence Plot Analysis*.
- Diana Maria Bucur, Georgiana Dunca, Constantin Călinoiu, Eugen Constantin ISBĂȘ OIU: *Experimental investigation over in site operational characteristics of a hydro generator*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2015; 77(1).
- Roman R., Iovanel R.G, Grecu I.S., Dunca G., Bucur D.M.: *Experimental evaluation of roughness coefficient of a HPP headrace channel*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2015; 77(3):215-222.
- Florentina Bunea, Gabriel Dan Ciocan, Dana Maria Bucur, Georgiana Dunca: *Aeration Solution of Water Used by Hydraulic Turbines to Respect the Environmental Policies*. DOI:10.1109/ICEPE.2014.6970062
- Georgiana Dunca, Diana Maria Bucur, Pontus P Jonsson, Michel J Cervantes: *Discharge measurements using the pressure-time method: Different evaluation procedures*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2014; 76(4).
- G. Dunca, D.M. Bucur, I. Bă lă untescu, C. Că linoiu: *Experimental analysis of the by-pass valves characteristics of Francis turbines*.
- Dunca G., Bucur D.M., Bălăunțescu I., Că linoiu C.: *Experimental analysis of a by-pass valve behavior during operation in a high head power plant*. UPB Scientific Bulletin, Series D: Mechanical Engineering 11/2012; 1(2013).
- Diana Maria Bucur, Dunca G., Că linoiu C.: *Experimental Vibration Level Analysis of a Francis Turbine*. IOP Conference Series Earth and Environmental Science 08/2012; 15(6), DOI:10.1088/1755-1315/15/6/062056
- Dunca G., Diana Maria Bucur, Isbășoiu E.C., Că linoiu C., C.M. Ghergu: *Vibration level analysis during the operation of a high head Hydro Power Plant*. UPB Scientific Bulletin, Series D: Mechanical Engineering 11/2011; 1(74):59-66.
- Diana Maria Bucur, Dunca G., Isbășoiu E.C., Că linoiu C., Roșioru O.T.: *Analysis of operating parameters during normal and transient regims of a high head Hydro Power Plant*. UPB Scientific Bulletin, Series D: Mechanical Engineering 11/2011; 1(74):51-58.

Diana Maria Bucur, Florentina Bunea, Gabriel Dan Ciocan, Gheorghe Baran, Eugen Constantin Isbasoiu: *Water parameters evolution in a hydroelectric site*. Environmental engineering and management journal 11/2010; 9(11):1539-1542., DOI:10.30638/eemj.2010.209

D M Bucur, C M Ghergu, N O Tănase, E C Isbășoiu: *Transitory flow in a complex hydroelectric scheme with multiple intakes and water tanks*. IOP Conference Series Earth and Environmental Science 09/2010; 12(1):012112., DOI:10.1088/1755-1315/12/1/012112

Diana Maria Bucur, Isbasoiu E.C.: *Study of flow at the air - Water interface*. UPB Scientific Bulletin, Series D: Mechanical Engineering 05/2010; 4(72):183-192.

Diana Maria Bucur, Octavia Nicoleta, Tănase, Călin Mihail Ghergu, Eugen Constantin Isbășoiu: *ALTERNATIVE FOR SMALL HYDRAULIC TURBINES*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2010; 72(1):85.

Bucur D.M., Tănase N.O., Ghergu C.M., Isbășoiu E.C.: *USING STANDARD PUMPS AS TURBINES*.

Diana Maria Bucur, Isbasoiu E.C.: *Air pockets in pipeline systems*. UPB Scientific Bulletin, Series D: Mechanical Engineering 05/2008; 70(4):35-44.

Georgiana Dunca, Eugen Constantin Isbășoiu, Constantin Călinoiu, Diana Maria Bucur, Călin Ghergu: *Vibrations level analysis during the operation of pumping station Gâlceag*. UPB Scientific Bulletin, Series D: Mechanical Engineering 01/2008; 70(4).

Diana Maria BUCUR, Eugen Constantin ISBAȘOIU, Georgiana DUNCA, Constantin CĂLINOIU: *CENTRALA HIDROELECTRICĂ DOBREȘTI LA 80 DE ANI*.

Isbășoiu E. C., Stănescu P., Stoia-Djeska M., Safta C.A., Dunca G., Bucur D.M., Ghergu C.: *Swirling flows in the suction sumps. Experimental approach*.

Diana Maria Bucur, Laura Diana Moise: *Studiul fenomenului de aerare peste un deversor*.

Patents

Bunea Florentina, Ciocan Gabriel Dan, Nedelcu Adrian, Bucur Diana Maria, Dunca Georgiana, Codescu Sebastian: *Sistem de aerare a apei pentru turbine hidraulice*. Ref. No: A/00688, Year: 09/2017

Conference Proceedings

Georgiana Dunca, Diana Maria Bucur, Alexandru Aldea, Andrei-Mugur Georgescu, Sanda-Carmen Georgescu: *EPANET Modelling of a High Head Pumped-Storage Hydropower Facility*. 3rd EWaS International Conference on "Insights on the Water-Energy-Food Nexus" (27-30 June 2018), Lefkada Island, Greece; 07/2018, DOI:10.3390/proceedings2110608

Sanda-Carmen Georgescu, Diana Maria Bucur, Georgiana Dunca, Andrei-Mugur Georgescu, Alina Alexandrina Nicolae, Petre-Ovidiu Ciuc: *Hydraulic balancing of the cooling water system of a pumped storage power plant*. 2017 International Conference on ENERGY and ENVIRONMENT (CIEM); 10/2017, DOI:10.1109/CIEM.2017.8120766

- Ionut Stelian Grecu, Diana Maria Bucur, Georgiana Dunca, Valeriu Nicolae Panaitescu, Michel J. Cervantes: *Implementation of the standard wall function in numerical computation software*. 2017 International Conference on ENERGY and ENVIRONMENT (CIEM); 10/2017, DOI:10.1109/CIEM.2017.8120848
- Diana Maria Bucur, Georgiana Dunca, Florentina Bunea, Constantin Calinoiu: *Aeration process influence over the operation of a small hydro turbine - generator unit*. 2017 10th International Symposium on Advanced Topics in Electrical Engineering (ATEE); 01/2017, DOI:10.1109/ATEE.2017.7905045
- Georgiana Dunca, Diana Maria Bucur, Michel J. Cervantes: *Sensitivity analysis on flow rate estimation using design of experiments: Application to the pressure-time method*. 2017 10th International Symposium on Advanced Topics in Electrical Engineering (ATEE); 01/2017, DOI:10.1109/ATEE.2017.7905035
- Angela Digulescu, Ion Candel, Ioana Cornel, Gabriel Vasile, Georgiana Dunca, Diana Maria Bucur, Alexandru Serbanescu: *Water Hammer Effect Characterization using an Acoustic Signal Processing Approach*. 9th International Symposium on Advanced Topics in Electrical Engineering, ATEE 2015, Bucharest, Romania; 05/2015, DOI:10.1109/ATEE.2015.7133666
- D M Bucur, G Dunca, M J Cervantes, C Călinoiu, E C Isbășoiu: *Simultaneous transient operation of a high head hydro power plant and a storage pumping station in the same hydraulic scheme*. 27th IAHR Symposium-Hydraulic Machinery and Systems, IAHR 2014, Montreal Canada; 12/2014, DOI:10.1088/1755-1315/22/4/042015
- Ioan Candel, Florentina Bunea, Georgiana Dunca, Diana Maria Bucur, Cornel Ioana, Bernard Reeb, Gabriel Dan Ciocan: *Detection of cavitation vortex in hydraulic turbines using acoustic techniques*. IOP Conference Series Earth and Environmental Science, Montreal, Canada; 09/2014, DOI:10.1088/1755-1315/22/5/052007
- Angela Digulescu, Ion Candel, Cornel Ioana, Diana Bucur, Teodor Petrut: *Underwater Object Tracking Using Time Frequency Signatures of Acoustic Signals*. OCEANS 2014 - TAIPEI, Taipei; 04/2014, DOI:10.1109/OCEANS-TAIPEI.2014.6964296
- Angela Digulescu, Teodor P., Ion Candel, Florentina Bunea, Georgiana Dunca, Diana Bucur, Cornel Ioana: *On the vortex parameter estimation using wide band signals in active acoustic system*. OCEANS 2014, Taipei; 04/2014, DOI:10.1109/OCEANS-TAIPEI.2014.6964552
- G Dunca, D M Bucur, M J Cervantes, G Proulx, M Bouchard: *Investigation of the pressure-time method with an unsteady friction*. HYDRO 2013, International conference and exhibition, Innsbruck, Austria; 10/2013
- Dunca G., Diana Maria Bucur, Calinoiu C., Isbasoiu E.C.: *Experimental analysis of the optimal cam characteristic for a Kaplan turbine*. The 9th International Conference on Hydraulic Efficiency Measurements, Trondheim, Norway; 06/2012
- Diana Maria Bucur, Georgiana Dunca, Eugen Constantin Isbășoiu, Oana Teodora Roșioru: *SIMULAREA MIȘCĂRILOR TRANZITORII ÎN CONDUCTELE AMENAȚĂRII CHEMA PONEASCA, PENTRU EXPLOATAREA ÎN CONDIȚII DE SIGURANȚĂ A CIRCUITULUI HIDRAULIC*. Conferința Națională și Expoziția de Energetică, CNEE 2011, Sinaia, Romania; 01/2011

Bucur D.M., Ghergu C., Tanase N.: *Considerații privind exploatarea CHE Tismana alimentata prin aducțiunea Motru si cu aducțiunea Clocotis închisa*. Lucrările Simpozionului Național de Informatica, Automatizari si Telecomunicații în Energetica, 20 - 22 Octombrie 2010, Sinaia, Romania; 01/2011

Aurel Cocioran, Diana Maria Bucur: *SOLUTII TEHNICE APLICATE ÎN RETEHNOLOGIZAREA ȘI MODERNIZAREA HIDROCENTRALELOR DE PE RÂUL OLT INFERIOR*. A șasea conferința a Hidroenergeticienilor din Romania, Dorin PAVEL, 27-28 mai 2010, Bucharest, Romania; 05/2010

G. DUNCA, C. GHERGU, O. ROȘIORU, D.M. BUCUR: *Analiza zonelor cu functionare optima ale agregatelor din CHE Stejaru*. Simpozionul Naional de Informatică, Automatizări și Telecomunicații în Energetică; 01/2010

Eugen Constantin ISBASOIU, Diana Maria BUCUR, Calin Mihail GHERGU, Georgiana DUNCA: *USING STANDARD PUMPS AS TURBINES*. Conference Excellence Research – A Way To E. R. A., Brasov; 01/2007