

CURRICULUM VITAE

Given and Family Name: Valeriu **DULGHERU**

Private Address: 9, Nicolae Milescu Spataru str. App.200, 2042MD
Chisinau, Republic of Moldova

Birth and place of birth: 09.03.1956, Carpesti, district Cantemir, Republic
of Moldova

Present occupation: Professor, Chief of the Department „*Basics of Machine Design*”
Technical University, Chisinau, Republic of Moldova



EDUCATION (secondary, university) AND DEGREES OBTAINED

1978 - Diploma of higher education of mechanic-engineer, the
(former) Politechnical Institut from Chisinau, speciality “*Technology of machine building*”. Diplome of Excellence;
1987 - Diploma of Doctor of technical science (PhD);
1995 - Diploma of Doctor habilitat of technical science (Dr.Sc.).

CAREER/ EMPLOYMENT

2014 - today Dean of the Department “*Basics of Machine design*”
1995- 2014- Dean of the chair “*Theory of mechanisms and machine parts*”
2008 - today Professor, Technical University of Moldova
2001 –today, doctorate advisor: Machinology and reliability of machines,
Machine Building Technology;
1991-2008 Assoc. professor, Technical University of Moldova, Chisinau, Moldova
1981-1991 Engineer, assistant, senior lecturer, conferencer at the chair
“*Theory of mechanisms and machine parts*”
1978-1981 Engineer at the Factory of Tractor from Chisinau, Moldova.

RECOGNITIONS (Honours, fellowships, awards, professional organisations):

- State Prize of Moldova on Science and Technics (1998);
- Honorary Inventor of the Republic of Moldova (1995);
- Honorary Inventor of Romania (1994);
- II Grand Prize, the World Exhibition of Technical – Scientific Achievements INPEX-XII, Pittsburg, USA (1996);
- Gold Medal OMPI (Organisation Mondiale de Propriete Intellectuelle), 2004;
- Merite de l'Innovation, Diplome de CHEVALIER, medal of the Kingdom of Belgium (2008);
- Inventor of the Year, Republic of Moldova, 2006.
- Awarded Golden Henry Coanda medal for succes in technical activity (1996);
- Awarded order „*Leonardo da Vinci*”, Iași, România, 2008;
- Awarded order „*Gogu Constantinescu*”, Cluj Napoca, România, 2013.
- Prize OMPI for the good inventor, the International Exhibition of Inventions, Geneve (2013);
- Awarded State Order “*Work Merit*” (2014);
- Awarded by about 100 golden and silver medals for taking part at International Exhibitions of inventors: EUREKA 94,95,96,97,98,99, 2000, 2001, 2004,2006,2007, 2008, 2009, 2010, 2011,2012,2013 Brusseles; INPEX XII, XIII, XIV, Pittsburgh USA (1996, 1997, 1998, 1999, 2006, 2007); 42th Air Show Paris “*Le Bourget*”; Casablanca, Maroco (1998); Geneva (1999, 2000, 2001, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014); ProInvent (2007-2014), Cluj Napoca, Romania; Inventica (1992, 1994, 1996, 2008-2014), Iași, Romania; EuroInvent (2009-2014); IWIS (2012-2013), Warszawa, Poland and other.
- Laureate of weekly “*Literatura si Arta*” for the years 1998, 1999, 2000,2002, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013.

SCHOLARSHIPS:

1994 - Course AutoCAD - Level 1. Autodesk, Chișinau; **(60h.);**
1996 - Courses on the International Commercialization of Science and Technology: protection of Intellectual Property”, United Nations Program for Development, Minsk, Bielarusi ;**(30h.);**
1997 - Courses “Higher Education Polisy and Institutional Decision Making”, SEU Summer University, Budapest, Hungary; **(80h.);**
1998 - Courses “Maintenance et controle de la qualite” - Module Francophone C.E.S.MECA-UTM. **(40 h.);**
2009 - Courses on the International Commercialization of Science and Technology: protection of Intellectual Property”, WIPO Program, Baku, Azerbaijan, **(40 h.);**

2010 - Courses on the International Commercialization of Science and Technology: protection of Intellectual Property”, OMPI Program, Frunze, Kyrgyzstan (40 h.).

ANOTHER ACTIVITIES:

- * Member of Bureau of Engineers Association from Moldova;
- * Correspondent member of the Romanian-American Academy of Sciences and Arts;
- * President of the Profile Seminar for doctorate thesis presentation;
- * President of the Expertise Committee of the National Counsel for Attestation and Accreditation of the Republic of Moldova;
- * Vice chief-editor of the technical-scientific magazine “Meridian Ingineresc”;
- * Member of the editorial staff for the magazine of Intellectual Property “Intellectus” (Republic of Moldova); magazines „Physics and Modern Technologies” (Republic of Moldova); „Innovative Technology”, Bucharest, Romania; the Annals of „Ovidius” University, Constanta, Romania etc.
- * Supervisor of doctoral thesis: five PhDs supported thesis, three are working on the dissertation stage.

RESEARCH INTERNSHIPS:

University of Applied Sciences, Konstanz, Germany, 2003,2005,2010 6 months,
University of Applied Sciences, Darnstadt, Germany, 2001 1 month,
University Transilvania, Braşov, Romania, 2008 2 months.

SPECIALIZATION:

main field: Precessional transmissions
other fields: Renewable energies, technical creation

PUBLICATIONS (books, monographs, published papers, panel participations, etc.)

Books, monographs: 36;
Number of papers in refereed journals: 185;
Number of patents 175;
Number of communications to scientific meetings: 234;
International Exhibition’s participation 70;
Publications in press 450.

INNOVATION ACTIVITIES:

1985 – „Economy, Science and Technology of MSSR” Exhibition, Dalat, Vietnam
World Exhibition of Young Inventors “Bulgaria-85”, Plovdiv, Bulgaria.
1987 – „Higher Education in the USSR” Exhibition, Hanoi, Vietnam.
“Higher Education in the USSR” Exhibition, Athens, Greece.
1987 – “70-th anniversary of the USSR” Exhibition, Moscow, USSR.
“Economy, Science and Technology of MSSR” Exhibition, Ulan-Bator, Mongolia.
“Economy, Science and Technology of MSSR” Exhibition, Sofia, Bulgaria.
“NTR-87” Exhibition, Moscow, USSR.
1988 –Soviet Inventions Exhibition, Budapest, Hungary.
1988 –Technical Innovations INVECS-88, Brno, Czechoslovakia
1989 –Fall International Fair, Leipzig, German Democratic Republic
1989 –“From Fundamental Research to Implementation into Production” Exhibition, Moscow, USSR.
1989 –Mobile Trade Exhibition, German Democratic Republic – Czechoslovakia – Hungary.
1990 –Exhibition of Technical-Scientific Achievements, New Delphi, India.
1990 –International Fair SIRIA-90, Damascus, Syria.
1990 – “Science and Technology in the USSR” Exhibition, Vienna, Austria.
1993 –Seoul International Inventions Fair, Seoul, South Korea.
1992, 1994, 1996 –International Exhibition on Inventions, Research and Technological Transfer, Iasi, Romania (**3 gold medals**).
1994-2013 –International Exhibition on Inventions, Research and Technological Transfer EUREKA, Brussels, Belgium, (**10 gold medals, 3 silver medals**).
1991-2014 –International Exhibition on Inventions, Geneva, Switzerland (**7 gold medals, 6 silver medals, 1 special prize**).
1995 –International Exhibition on Inventions for Young Inventors, UNESCO, Iasi, Romania (**gold medal**).
1997 –Le Bourget Airspace Show, Paris, France.
1998 –International Exhibition on Inventions, Research and Technological Transfer, Casablanca, Morocco, (**gold medal**).
1996-1999, 2005, 2006 –International Exhibition on Inventions and Technological Transfer INPEX, Pittsburgh, the USA (**Grand Prix II, 4 gold medals and 2 silver medals**).

1999-2005, 2009, 2011, 2013 –INFOINVENT International Exhibition, Chisinau, Republic of Moldova (**14 gold medals, 11 silver medals and 8 bronze medals**).

2000 –„Expo-2000” International Exhibition, Hanover, Germany.
Romanian Scientific Achievements and Inventions Fair.

2003, 2005, 2007, 2009 –ECOINVENT International Exhibition, Iasi, Romania
(**Gold Medal with distinction, 6 gold medals, 3 silver medals, 2 Special Awards**).

2006, 2008, 2009, 2010, 2011, 2012, 2014 - International Exhibition on Inventions and Technological Transfer INVENTICA, Iasi, Romania (**12 gold medals, 2 special awards: OSIM, Romania, National Institute of Inventions, Iasi, Romania**)

2006, 2007–International Exhibition on Inventions and New Technologies INVENTICA, Bucharest, Romania (**gold, silver and bronze medals**)

2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 –International Exhibitions on Inventions and New Technologies „Novii ceas”, Sevastopol, Ukraine (**14 gold medals, 6 silver medals, 5 Special Awards**).

2006–International Exhibition on Inventions and Innovations „Vinahodi Innovacii”, Kiev, Ukraine.

2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014–International Exhibitions „Moscow International fair on Industrial Property – Archimedes” (**2 gold medal, 4 silver medals, 2 bronze medals, 6 special prizes**).

2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014–International Exhibition on Inventions PROINVENT, Cluj-Napoca, Romania (**15 gold medals, 6 silver medals, 1 bronze medal, 3 special prizes**).

International Exhibition „Machine building Industry. Materials Processing, machine tools and instruments”, Chisinau, MoldExpo (**3 diplomas of the Chamber of Commerce and Industry**).

2008–The First International Inventor’s Day Convention and the National Inventor’s Day organized by the National Research Council of Thailand (NRCT) (**silver medal**).

The 6th International Exhibition (Suzhou) of Inventions, China (**gold medal, silver medal**).

15th International Exhibition Specialized in „Food & Drinks. Food Technology”, MoldExpo, Chisinau (**Diploma of the Ministry of Agriculture and Food**).

2009, 2010, 2011, 2012, 2013, 2014 –European Exhibition of Creativity and Innovation EuroInvent, Iasi, (**Jury Prize for Environmental Protection, 16 gold medals, 7 silver medals, one bronze medal and Diploma of excellence**).

2012, 2013 – The International Warsaw Invention Show (4 gold medals, 2 silver medal and 2 special awards)

2012 – **The International Federation of Inventors Associations Glory Medal**

2013 – **Prize of the 41st International Fair of Inventions, Geneva, Switzerland**

RECENT SCIENTIFIC PUBLICATIONS

Books (selections):

1. Bostan, I., Gheorghe, A., Dulgheru, V., Sobor, I., Bostan, V., Sochirean, A. Resilient Energy Systems. Renewables: Wind, Solar, Hydro. Springer, VIII, 507 p. 2012. ISBN 978-94-007-4188-1
2. Bostan, I., Dulgheru, V., Sochirean A., Babaian I. Anthology of inventions: planetary precessional transmissions. Vol.1.– Ch.:S.n., 2011 (Combinatul Poligr.). 2011.-593p. ISBN 978-9975-4100-9-0.
3. Bostan, I., Dulgheru, V., Gluşco C., Mazuru S., Vaculenco M. Anthology of inventions: planetary precessional transmissions. Vol.2. – Ch.: Bons Offices SRL, 2011.-537p. ISBN 978-9975-4100-9-0.
4. Bostan, I., Dulgheru, V., Ţopa M., Bodnariuc I., Dicusară I., Trifan N., Ciobanu R., Ciobanu O., Malcoci Iu. Anthology of inventions: kinematic planetary precessional transmissions. Vol.4. – Ch.: Bons Offices SRL, 2011.-623p. ISBN 978-9975-4100-9-0.
5. Bostan, I., Dulgheru, V., Bostan, V., Ciupercă, R. Anthology of inventions: Renewable energy conversion systems. Vol.3. – Ch.: Bons Offices SRL, 2009.-458pp. ISBN 978-9975-80-283-3.
6. Dulgheru, V., Ciupercă R., Bodnariuc I., Dicusară I. Mechanics Application: design guide. Chisinau, Tehnica, 2009. ISBN 978-9975-45-105-5. 308p.
7. Dulgheru, V., Ciupercă R., Bodnariuc I., Dicusară I. Mechanics Application: design guide. Chisinau, Tehnica, 2008. ISBN 978-9975-63-074-0. 296p.
8. Cantemir L., Dulgheru, V., Carcea M. Initializing in technical creativity. Chisinau, Tehnica-Info, 2008, 282p.
9. Bostan, I., Dulgheru, V., Sobor, I., Bostan, V., Sochirean A. Renewable energy conversion systems. – Ch.: Bons Offices SRL, 2007. ISBN 978-9975-63-076-4. - 592 p.
10. Bostan, I., Dulgheru, V. From history of technics. Editura UTM, 2007. ISBN 973-31-1400-8. 196p.
11. Dulgheru, V., Cantemir L., Carcea M. Technical creativity: practical guide. Chisinau, UTM, 2005. ISBN 9975-63-06-5. 180p.
12. Gafiţanu, M., Bostan, I., Jula, A., Racocea C., Chişu, E., Dulgheru, V., Moldovean, Gh., Hagi, Gh. Part of machines. P.2. Tehnica, Bucureşti, 2002. ISBN 973-31-1400-6. 432p.
13. Bostan, I., Dulgheru, V., Toca, A., Boboc, V., M., Vaculenco, M., Stroncea, A., Pereu, I., Mocreac, S. CAD design in Machine building. Tehnica-Info, 2001. ISBN 9975-63-076-6. 208p.
14. Cantemir L., Dulgheru, V., Carcea M. Practical Inventics. Chisinau, AGEPI, 2000. ISBN 9975-9536-9-7. 267p.
15. Dulgheru, V., Cantemir L., Carcea M. Book of Creativity. Chisinau, Tehnica-Info, 2000. ISBN 9975-63-06-3., 256p.
16. Dulgheru, V., Oprea A., Poştaru G., Musteaţă A. Mechanics Application. Chisinau, Tehnica, 1999. ISBN 9975-910-65-3. 284p.

17. Gafițanu, M., Bostan, I., Jula, A., Racocea C., Chișu, E., Dulgheru, V., Moldovean, Gh., Hagiu, Gh. Part of machines. P.1. Tehnica, Bucuresti, 1999. ISBN 973-31-1400-6. 384p.
18. Bostan, I., Dulgheru, V., Grigoras, S. Planetary, precessional and harmonic transmissions. Bucuresti-Chisinau, 1997. ISBN 973-31-1069-8. 400p
19. Dulgheru, V., Tofan, I. Principles of engineering creation. Chisinau, Stiinta, 1992. ISBN 5-376-01576-9. 142p.
20. Bostan, I., Glușco C., Oprea A., Dulgheru, V. Precessional epicyclic gear trains. Chisinau, Stiinta, 1987, 156p.
21. Bostan I., Dulgheru V. Development of Planetary Precessional Transmission with Multicouple Gear /Power Transmissions. Proceedings of the 4th International Conference, Sinaia, Romania, June 20-23, 2012. Springer. Pp. 597-607. ISSN 2211-0984, ISBN 978-94-007-6558-0
22. Bostan I., Gheorghe A., Dulgheru V., Bostan V., Sochireanu A., Dicusară I. *Conversion of Renewable Kinetic Energy of Water: synthesis, Theoretical Modeling, and Experimental Evaluation*. Energy Security: International and Local Issues, Theoretical Perspectives, and Critical Energy Infrastructures (NATO Science for Peace and Security Series C: Environmental Security). Published by Springer. 2011, Pp. 125-177. ISBN 978-94-007-0718-4.

Articles(selections):

1. Bostan, I., Ionescu, Fl., Dulgheru, V. and A. Sochireanu. Kinetostatic Analysis of Sphero-Spatial Mechanisms by using 3D-Models and -Simulations. Meridian Ingineresc, Revue Technical University of Moldova & Moldavian Society of Engineers, N°2, 2004, ISSN1683-853-X, pp. 59-61.
2. Bostan I.,Dulgheru V.,Bostan V., Sochireanu A., Ciobanu O., Ciobanu R. Micro-hydropower station for kinetic energy conversion of flowing water. Hidraulica. Magazine of Hydraulics, Pneumatics, Tribology, Ecology, Sensorics, Mechatronics.(No. 3-4/2012. Pp. 15-21. ISSN 1453 – 7303.
3. Ion Bostan, Valeriu Dulgheru, Anatol Sochirean. Research and Development of Planetary precessional transmision. Balkan Journal of Mechanical Transmissions. Volume 1 (2011), Issue 1, pp.12-17. ISSN 2069-5497.
4. Bostan I., Dulgheru V., Sobor I., Bostan V., Sochireanu A., Trifan N., Ciupercă R., Dicusara I., Ciobanu O., Ciobanu R., Bodnariuc I., Malcoci Iu., Crudu R., Guțu M., Gladîș V. (2011), Horizontal axis wind microturbines with power of 10 kW in Environmental Engineering and Management Journal, Universitatea Transilvania din Brașov, România, 10-12 Noiembrie, 2011, (pag 1041-1046). IF 1,435.
5. Bostan I., Vișa I., Dulgheru V., Ciupercă R. (2011), Development, manufacturing and testing vertical axis wind turbines with vertical blades in Environmental Engineering and Management Journal, Universitatea Transilvania din Brașov, România, 10-12 Noiembrie, 2011, (pag 1027-1032). IF 1,435.
6. Bostan I., Dulgheru V., Bostan V., Sochireanu A., Trifan N., Dicusara I., Ciobanu O., Ciobanu R. (2011). A micro/hydropower station for the conversion of flowing water kinetic energy in Environmental Engineering and Management Journal, Universitatea Transilvania din Brașov, România, 10-12 Noiembrie, 2011, (pag 1033-1040). IF 1,435.
7. Ionescu, Fl., Bostan, I., Dulgheru, V., Arotaritei, D., Constantin, G., Kostadinov, K. and F. Stratulat. *Mechatronics Between Dream And Actual Reality*, Proc in Manufacturing Systems, Vol. 5 (2010), No. 3 Editura Academiei Române, ISSN 2067-9238, pp. 121-136.
8. Bostan, I., Ionescu, Fl., Dulgheru, V., Constantin, G., Sochirean, A. *Integrated CAE Development of Precessional Drives Using Autodesk Inventor Platform*, In: Proc of International Conference on Manufacturing Systems, ICMaS, Oct 26-27, 2006, Publishing House of Romanian Academy, Bucharest, Romania, ISSN: 1842-3183, pp. 21-28.
9. Bostan I.,Dulgheru V., Cantemir L.,Ionescu Fl., Some aspects of Creativity as Process and Product // ARA Journal, volume 2000-2002, Nr. 25-27, ISBN 3-00-011583-8, P.136-139.
10. Bostan I., Ionescu F., Dulgheru V., Constantin G., Sochirean A. Integrated CAE development of precessional drives using Autodesk Inventor platform/ Proceeding of the 15th International Conference on Manufacturing Systems – ICMaS. Published by Editura Academiei Române, ISSN 1842-3183, 2010, pp.237-273.
11. Bostan I., Dulgheru V., Giurgiuman H., Heusch Ch.Development of processing method for nonstandard teeth profile generation (Articol științific)// The 17th International DAAAM Symposium "Intelligent Manufacturing & Automation: Focus on Mechatronics & Robotics". 8-11th November 2006, Vienna, Austria, EU, p.051-052.
12. Bostan I.; Dulgheru V., Giurgiuman H., Heusch Ch. The Elaboration of Multiple Precessional Gear Theory (Articol științific) // The 17th International DAAAM Symposium "Intelligent Manufacturing & Automation: Focus on Mechatronics & Robotics". 8-11th November 2006, Vienna, Austria, EU, p.049-050.
13. Bostan I., Dulgheru V. Interpretation, calculation and development of processing method for teeth profile generation /Buletinul Politehnic din Iași, Tomul LI(LV) Fasc.5. Secția "Construcții de mașini", 2005. P.271-276.
14. Bostan I., Dulgheru V., Odainăi V.Some aspects regarding elaboration of the precessional mechatronic module with small diameter dimensions // Buletinul Institutului Politehnic din Iași, Tomul LII(LVI) Fasc. 5D. Secția Construcții de Mașini, Iași, 2006, p. 31-36. ISSN: 1011-285.
15. Bostan I., Dulgheru V., Malcoci Iu. Some aspects regarding decrease of sliding friction in precessional kinematical gear// Buletinul Institutului Politehnic din Iași, Tomul LII(LVI) Fasc. 6A. Secția Construcții de Mașini, Iași, 2006, p. 85-90. ISSN: 1011-2855.
16. Bostan, I. ; Dulgheru, V. ; Dicusară, I. Contributions to the processing of the small-sized precessional toothed wheels with non-standard profile of teeth// Acta Technica Napocensis. Series: Applied Mathematics and Mechanics. - Cluj-Napoca, 2006. - 49.-Vol. IV.-P. 817-820.
17. Bostan, I. ; Dulgheru, V. ; Odainăi, V. Some aspects concerning the development of the precessional reducer for oil pumping from big depth // Buletinul Institutului Politehnic din Iași. Tomul LII (LVI). Fascicula 5 A. Secția: Construcții de Mașini, - Iași:

- Univ. Tehn. "Gh. Asachi", 2006. - P. 31 - 36.
18. Bostan, I. ; Dulgheru, V. ; Malcoci, Iu. Some aspects concerning the vibro-activity and noise characteristics of the planetary precessional transmission //Acta Technica Napocensis. Series: Applied Mathematics and Mechanics. - Cluj-Napoca, 2007. - 50. - Vol. II. - P. 259-262.
 19. Bostan, I. ; Dulgheru, V. ; Sochirean, A. Dynamic processes simulation in the planetary precessional transmissions // Acta Technica Napocensis. Series: Applied Mathematics and Mechanics. - Cluj-Napoca, 2007. - 50. - Vol. II. - P. 263-268: tab.
 20. Bostan I., Dulgheru V., Sochireanu A. CAE development of precessional drives using autodesk inventor platform. Buletinul Institutului Politehnic din Iași. Tomul LIV (LVIII). Fasc. 1, 2008. Secția „Construcții de Mașini”. Iași, P. 23-30. ISSN 1011-2855.
 21. Bostan I., Dulgheru V., Vengher D. Unele aspecte privind calculul transmisiilor precesionale la tensiuni de contact // VAREHD 13. 13th Conference on Elastohydrodynamic Lubrication and Traction, Suceava, 6-7 October, 2006. The Proceeding of the Conference are recorded on CD, having ISBN-10 973-666-215-2.
 22. Bostan I., Dulgheru V., Dicusară I. Contributions to the elaboration of Fabrication Technologies for smallsize wheels with non-standard profile of teeth // Pro-Activ Partnership in Creativity for the next Generation / Proceedings / 31st Annual Congress of the American Romanian Academy of Arts and Sciences / ARA Doval E. (Coord.) – Quebec Canada. Presses Internationales Polytechnique, 2007, pp. 63-66. ISBN 978-2-553-01412-3.
 23. Bostan I., Dulgheru V., Sochireanu A. Dynamic processes simulation of the planetary precessional transmissions. Conferința Internațională Advanced "Engineering in Mechanical Systems ADEMS'07". Cluj-Napoca, 7-8 iunie 2007. P. 263-269.
 24. Bostan, I., Gheorghe, A., Dulgheru, V., Bostan, V., Sochireanu, A., Dicusară, I. *Conversion of Renewable Kinetic Energy of Water: synthesis, Theoretical Modeling and Experimental Evaluation*. Energy Security: International and Local Issues, Theoretical Perspectives, and Critical Energy Infrastructures (NATO Science for Peace and Security Series C: Environmental Security). Published by Springer. Pp. 125-177. ISBN 978-94-007-0718-4.

Patents(selections):

- P1. Bostan, I., Țopa M., Dulgheru V., Vaculenco M. Precession gear and process for realization thereof. Patent 1886 (MD), CIB F 16 H 1/ 32; B 23 F 9/ 06 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr. 3/ 2002, pp. 38-39.
- P2. Bostan, I., Cacuci, D. G., Ionescu, Fl., Dulgheru, V. Patent 3563 (MD). Process for Manufacture by Explosion of Structures with Microgrooves (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI 4/2008, pp. 35-36.
- P3. Cacucci, D. G., Bostan, I., Dulgheru, I., Ionescu, Fl. Process and Tool Electrode for Manufacturing Metal and Alloy Structures by Elektroerosion (Variants). Patent 3596 (MD) (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.2/2008, pp. 33-34
- P4. Bostan, I., Dulgheru V., Odainâi V. Patent 2024 (MD).Precession gear.CIB F16 H1 /32. (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr. 10/2002, pp. 32-33.
- P5. Bostan, I., Dulgheru V., Bodnariuc I. Suspension of a transport facility. Patent 2142 (MD), CIB B 60 G17/06 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.4/2003, pp. 36-37.
- P6. Bostan, I., Dulgheru V., Odainâi V. Precession reduction gear. Patent 2177 (MD), CIB F 16 H 1/ 32(Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.5/2003, pp. 31-32.
- P7. Bostan, I., Dulgheru V., Odainâi V. Motor – gear box. Patent 2365 (MD), CIB F 16 H 1/ 00 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova.. BOPI nr.1/2004, pp. 39-40.
- P8. Bostan, I., Dulgheru V., Vaculenco M., Bodnariuc I. Precession planetary transmission Patent 2711 (MD), CIB F 16 1/00(Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.2/2005, pp. 32-33.
- P9. Bostan, I., Dulgheru V., Vengher D. Precession transmission. Patent 2729 (MD), CIB F16 H 1/ 32 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.3/2005, pp. 36-37.
- P10. Bostan, I., Dulgheru V., Sochireanu A. Planetary precession gearing. Patent 2821 (MD), CIB F 16 H 1/32 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.7/2005, pp. 34-35.
- P11. Bostan, I., Dulgheru V., Bostan V., Sochireanu A. Driving mechanism of the glass-frame riser (variants). Patent 3058 (MD), CIB E 05 F 11/50; B 60 J 1/17(Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.5/2006, pp. 32-33.
- P12. Bostan, I., Dulgheru V., Ciobanu R. Precession step-up gear. Patent 3276 (MD), CIB F16 H 1/32 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.3/2007, pp. 36-37.
- P13. Bostan, I., Dulgheru V., Dicusară I. Process and device for working of precession gearwheels of small dimensions. Patent 3363 (MD), CIB B 23 H 1/00; B 23 F 9/06 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.7/2007, pp. 34-35.

- P14. Bostan, I., Ionescu Fl., Dulgheru V., Ciobanu, R., Malcoci Iu. Aircraft-control gear. Patent 3510 (MD), CIB B 64 C 9/00; B 64 C 5/06; B 64 C 9/32; B 64 C 13/50 (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.8/ 2007, pp. 30-31.
- P15. Bostan, I., Vișa, I., Dulgheru, V., Ciupercă R. Vertical axis wind turbine (variants). Patent nr. 3847 (MD). (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.2/2009, pp. 37-38.
- P16. Bostan, I., Vișa, I., Dulgheru, V., Dicusară I. Orientation system for parabolic solar device (variants). Patent nr. 3975 (MD). (Original in Romanian, English and Russian). Buletinul Oficial de Proprietate Industrială, The Official Bulletin of Industrial Property, Republica Moldova. BOPI nr.3/2010, pp. 35-36.
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RESEARCH PROJECT

INTERNATIONAL RESEARCH PROJECT / SCIENTIFIC DEVELOPMENT

Participating in 67 research projects national and international, inclusively:

1. Bostan I., Dulgheru V., Vaculencu M., Ciupercă R., Odainăi V. CRDF Grant MP1-2287. *The Elaboration of submersible Robot Complex drive mechanism for Ferro-Manganese Concretion Extraction* (35000 USD).
2. Bostan I., Dulgheru V., Vaculencu M., Ciupercă R., Odainăi V., Bodnariuc I. CRDF Grant MP2-3023. *The Elaboration and Research of Kinematic Planetary Precessional Transmissions* (38000 USD).
3. Bostan I., Tighineanu I., Dulgheru V., Dorogan V. CRDF Grant MP1-990. *National Centre for Materials Study and Testing in Mechanics, Opto-Microelectronics and Non-Conventional Energetics* (312000 USD).
4. Bostan I., Dulgheru V., Ciupercă R., Poștaru Gh., Trifan N. CRDF Grant „*Ahelical turbine system for wind and hydraulic energy recovery* (80000 USD).
5. Bostan I., Dulgheru V., Sochireanu A., Ciupercă R., Trifan N., Dicusară I. et al. Design of a new type of gearing for crushing equipment advantageous from the point of view of its cost. Grant awarded by ARP Alpishbach firm, Germany and University of Applied Science, Konstanz, Germany. Coordinator: acad. Ion Bostan, TUM, Chișinău, (56000 Euro) 2004-2006.
6. Bostan I., Dulgheru V., Dulgheru V., Poștaru Gh., Ciupercă R., Trifan N. Conversion of renewable kinetic energy of water: synthesis, theoretical modelling and experimental evaluation. SCOPES Grant IB7320 – 110902/1. Coordinators: prof. dr. Adrian Gheorghe (University ETHZ, Zurich, Switzerland); acad. Ion Bostan (TUM) (70000CHF) 2005-2008.
7. Transnational project EMULACTION «*Environnement multimodal pour Activités Coopératives Transnationales de formation*». With the support of «*Fonds francophone des inforoutes*». Participating countries: France, Canada, Lebanon, Vietnam, Romania and Republic of Moldova (2008-2009). The amount of total funding – 190000 Euro. Funding for Technical University of Moldova– 11454 Euro.
8. International project SEE/A7524/2.4/X. „*SEE HYDROPOWER, targeted to improve water recourse management for growing renewable energy production*” (2009-2012). The amount of total funding – 2156000 Euro. Funding for Technical University of Moldova – 50000 Euro.
9. Proiect BSEC-HDF / RES 2011-02 „*Technological systems based on the utilization of water kinetikal energy for rural consumers (TESUWKERC)* (2011-2013) – 62500 Eur,
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Ministries of the former USSR and Republic of Moldova:

1. Bostan I., Glușco C., Oprea A., **Dulgheru V.**, Mazuru S Co - *axial precessional multiplier for wind-electrical plant*//Report to L.C.S. (final). №FP01840010860, inv.№ 02860057046. Responsible executor Bostan I. IPC. „S. Lazo”. M., 1985. p. 89.

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