



## Europass Curriculum Vitae



### Personal information

First name / Surname **Ion SANDU**  
Address(es) Carol I Blvd., nr. 11, Corp G Demisol, Iași, 700505  
Telephone(s) +40232201662 Mobile: +40744431709  
Fax(es) +40232214816  
E-mail [lon.sandu@uaic.ro](mailto:lon.sandu@uaic.ro), or [sandu\\_i03@yahoo.com](mailto:sandu_i03@yahoo.com)  
Nationality Romanian  
Date of birth 03.01.1952  
Gender Male

**Occupational field** **Scientific Conservation of Cultural and Natural Heritage, Environmental Science and Engineering, Materials Science and Technology, Inventics Forensic Science**

### Work experience

Dates (*from – to*) **01.03.1980 - 01.10.1996**  
Occupation or position held Assist. Professor,  
Main activities and responsibilities Head of Microproducts Laboratory and holder of discipline Gheorghe Asachi Technical University of Iasi/Polytechnic Institute  
Dates (*from – to*) **01.10.1996 – PRESENT**  
Occupation or position held Professor,  
Main activities and responsibilities Director of Laboratory Scientific Investigation and holder of discipline  
Name and address of employer "Al. I. Cuza" University of Iasi, 11 B-ld Carol I, Iasi, Romania  
Type of business or sector Department of Conservation of Cultural Heritage  
Dates (*from – to*) **01.10.2009 – Present**  
Occupation or position held Professor  
Main activities and responsibilities Supervisor, PhD Thesis coordinator  
Name and address of employer Environmental Science PhD School (Science of Conservation of the Cultural Heritage and Biodiversity), "Al. I. Cuza" University of Iasi, B-dul Carol I, Iasi, Romania  
Type of business or sector Scientific Conservation and Investigation of Works of Art and Historic Monuments, and Environmental Science and Engineering/PhD in Science of Conservation and Environmental Science and Engineering

Dates (from – to)	<b>01.10.2010 –Present</b>
Occupation or position held	Professor
Main activities and responsibilities	Supervisor Project, Master Thesis coordinator
Name and address of employer	Forensic Science Master School “Al. I.Cuza” University of Iasi, B-dul Carol I, Iasi, Romania and “Al.I.Cuza” Police Academy, .Aleea Privighetorilor, Bucharest, Romania
Type of business or sector	A Forensic Science Treasures and Counterfeit Documents (Scientific Conservation and Investigation of Works of Art and Historic Monuments Archeological Sites and Old Documents -Forgery and use of forgery), Conservation Materials Traces etc.
Dates (from – to)	<b>01.10.2006 – 01.10.2010</b>
Occupation or position held	Director Partner Project
Main activities and responsibilities	Supervisor Project, PhD Thesis coordinator
Name and address of employer	EPISCON (European PhD in Science for Conservation), Studies University of Bologna/“Al. I.Cuza” University of Iasi, B-dul Carol I, Iasi, Romania
Type of business or sector	Scientific Investigation and Conservation of Cultural Heritage Department
Dates (from – to)	<b>01.10.2005 –Present</b>
Occupation or position held	Director
Main activities and responsibilities	Supervisor research projects and themes,
Name and address of employer	“Al. I.Cuza” University of Iasi, B-dul Carol I, Iasi, Romania
Type of business or sector	Laboratory of Scientific Investigation and Conservation of Cultural Heritage, ARHEOINVEST Research and Education Interdisciplinary Platform
Dates (from – to)	<b>01.10.2000– 01.07.2006</b>
Occupation or position held	Professor
Main activities and responsibilities	Master course: Conservation of Monuments
Name and address of employer	“Gh. Asachi” Technical University of Iasi, B-dul D. Mangeron 71, Iasi, Romania
Type of business or sector	Department of Civilian Constructions and Architecture
Dates (from – to)	<b>01.03.1980 – 31.09.1990</b>
Occupation or position held	Assist. Prof.
Main activities and responsibilities	Holder of discipline, Supervisor Project and Thesis coordinator
Name and address of employer	“Gh. Asachi” Technical University of Iasi, B-dul D. Mangeron 71, Iasi, Romania
Type of business or sector	Department of Inorganic Chemistry
Dates (from – to)	<b>01.01.2020 – PRESENT</b>
Occupation or position held	Corresponding Member
Name and address of employer	Romanian Academy of Scientists, Bucharest
Type of scientific field	Research and Innovation Department
<b>Education and training</b>	
Dates	1976 – 1984 Ph.D. Programme “Gh. Asachi” Technical University of Iasi, Romania 1975-1976: Master - “Gh. Asachi” Technical University of Iasi Specialization: Inorganic Chemistry 1971 – 1975: “Gh. Asachi” Technical University of Iasi Specialization: Inorganic Chemistry 1967- 1971: High-School – Moinesti, Bacau, Romania
Title of qualification awarded	Ph.D degree in Chemistry

**Personal skills and competences**

Mother tongue(s) **Romanian**

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

**Russian Language**  
**French Language**  
**English Language**

Understanding		Speaking		Writing			
Listening		Reading		Spoken interaction		Spoken production	
B2	B1	B2	B1	B2	B1	B2	B1
B2	B1	B2	B1	B2	B1	B2	B1
A2	B1	B1	B2	A2	B1	A2	B1

Social skills and competences

Teamwork: I have worked in various types of teams from research teams.  
Very good communication skills, team building gifts.  
Creative, high capacity of synthesis of interdisciplinary knowledge, non-discriminating people of different cultures.  
Amazing capacity to receive new information, strong sense of duty, hard-working.

Organisational skills and competences

Good manager (Founding member of two National Institutes for Research and two Academic Associations, 116 Research Projects as Director)  
European Expert in Science for Conservation  
Great capacity for developing laboratories (more than 16).  
Organization of the Technical Creativity Exhibitions (8)  
Organization of International Symposium in Cultural Heritage (7)

Computer skills and competences

Office 2003, Adobe Photoshop,

Other skills and competences

Capacity for developing new devices, methods and techniques for laboratory (36 patents in field)  
Good capacity for implementation of new technologies (6 micro production labs and 130 tested patents)  
Author of wall paintings at two orthodox churches.  
Three personal exhibition of paintings and four collective exhibitions.  
The graphic at one poetry book.  
Collection keeper.  
Restorer.

Driving licence

Driving License - B category

Date: 07.02.2023

**Signature**

**Author or co-author** of 170 books, 1195 scientific papers (416 ISI), 168 patents (30 abroad and 135 Derwent Innovation Index/ISI), 627 International scientific communications and 832 National scientific communications.

**Scientific paper, books and patents cited in other authors** (3.897): ISI paper (3897/2511 without self-citations), books and proceedings (136), patents (83), PhD thesis (71), dictionaries and albums (36), your books reviewer in ISI Journal (17);

**Hirsch Index:** 29 ISI/29 Scopus/31 Academic google;

**Director or coordinator of national research programme** 112 projects, 6 European projects and research team member in 71 national projects;

**Supervisor PhD Thesis:** 10 foreign students (Japan, Jordan, Cameroon, Ivory Coast, France, Malaysia, Iran and Italy) and 22 Romanian students graduated, 8 Romanian PhD students currently in development;

**Member in International Juries** (ARCHIMEDES - Moscow, 2003-2019, NEW-TIMES - Sevastopol, 2006-2014, INFOINVENT - Kishinev, 2005-2017, INOVA – Zagreb, 2008-2015, INVENTICA-Bucharest, 2006-2010, PROINVENT - Cluj Napoca, 2006-2017, EUROINVENT – Iasi, 2009-2019);

**Member of Scientific Boards Journals** (14 national and international journal, 1 Editor in chief, 2 Guest Editor and 1 coordinated series - PATRIMONIUM - „A.I.Cuza” University Publishing House, see in Annexes);

**Member of Romanian Academy of Scientists, Bucharest (2019);**

**Member of European Academy of Sciences and Arts, Salzburg (2021);**

**Honorary President of Romanian Inventors Forum, Iasi (2018);**

**Doctor Honoris Causa/Professor Emeritus/Honorary Senator** (Sibiu 2017, Galati 2013, Sofia 2006, New York 1998);

**Honorary Citizen of the locality born (2019)**

**International Research Networks** (UNESCO FORUM, University and Cultural Heritage - Valencia, Chair Unesco, Environmental Engineering and Scientific Conservation Cultural Heritage - Iasi, International Innovation Club ARCHIMEDES - Moscow);

**Member of National and European Expert Group** in Evaluation of the Technical Creativity and Scientific Expertise, **Main Expert in Impact Studies**, Environment Survey and Conformation and Ecological Rehabilitation Plans Founding-member of the Romanian Scientist Association (1984 - 2011);

**Member of International Profesional Society (16)**

#### Additional information

**Prises and Awards** (215), **Medals** (655) and **Diplomas** (161), 32 first Prize in national invention exhibitions (1980-1989), 396 gold medals, 182 silver medals and 77 bronze medals at international exhibitions of inventions, 1992-2020 (Bruxelles, Geneva, Pittsburg, Moscova, London, Budapest, Warsaw, Seoul, Istanbul, Toronto, Sevastopol, Zagreb, Kishinev, Taipei, Novi Sad, Barcelona, Varna, Osetiek, Perlis-Malaysia, Kenitra-Maroc, Skopje, Osijek-Croatia, Katowice, Bangkok, Foshan, Bali, Kaohsiung, Taiwan, Zagreb, Cairo, Barcelona, Perlis-Malaysia, Macao-China etc.).

#### Excellent results in science of conservation and chemical research

The three structures of metal artefacts patina theory building (primary, secondary and contamination structures); degradation and deterioration effects theory building by micro and macro structural destruction (physical state) and material alteration (chemical nature) process. The normal range of variation of hydric equilibrium of wood theory building, applied in archaeometry and impact studies for preservation process.

Solion theory building for NaCl aerosols.

Electrochemical Conversion of Energy, Science of materials implied in electronics, energetic, restoration and preservation of the cultural national values and biotechnology.

Non-conventional procedures for the synthesis and the physic-structural, chemical and electrochemical characterization of some new materials with technical implications ("Layer-on-layer" sequential co-precipitation by ionic exchange by using the bionics system model; obtaining and characterization of the structures with stratified atomic networks with phonon-absorbent, piro-and/or photoelectric proprieties, proton conduction by the "tunneling effect" in the van der Waals bands of the compacts hexagonal marginal structures of the chalcogenides type from the stratified atoms networks, modification of the "proton-electron" mechanism for the reduction of the monophasic redox couples by there passing in reversible diphasic redox couples).

Technical creativity (invents) in chemistry, metallurgy, chemical engineering, biotechnology and keeping of the cultural national values.

**Holder of Chemistry Course** (General Chemistry, Descriptive Inorganic and Organic Chemistry, Redox Systems in the Energy Conversion, Invents in Chemistry, Metals Chemistry, Structure and Reactivity of the Compounds),

**Holder of Conservation Science** (Scientific Investigation of Works of Art, Science of Materials for Restoring and Keeping of the Cultural National Values Art, Etiopatology of Works of Art Metal Restoration, Photography and Photo-grammetry; Conventional Representation in Restoration (Bachelor Degree and Master Degree in Conservation of Art; Master Degree in Conservation Old Constructions); Ecology of the Sport Systems (Master Degree in Sport),

**Holder of Environmental Science** (Ph.D. School).

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## Annexes

**International Research Networks** (UNESCO FORUM, University and Cultural Heritage - Valencia, Chair Unesco, Environmental Engineering and Scientific Conservation Cultural Heritage - Iasi, International Innovation Club ARCHIMEDES - Moscow),

**Member of National and European Expert Group** in Evaluation of the Technical Creativity and Scientifically Expertise,

Main Expert in Impact Studies, Environment Survey and Conformation and Ecological Rehabilitation Plans

### Member of Professional Society:

- World Invention Intellectual Property Association, Taiwan (2013-2016);
- Founding-member of the Romanian Scientist Association (1984 - 2016);
- Active Member of The New York Academy of Sciences (1984-1996);
- Member of the Invents Committee of the Romanian Academy (1988 - 2016);
- Founding-member of Romanian Invents Society (1991 - 2003);
- Founding-member of Romanian Inventors Forum (2003-2016)
- Member of the EURISTIKA International Creativity Association (1991, Volgograd);
- Member of the Physical-Chemistry Society (1991 - 2016);
- Corresponding Member of Osterreichische Albert Schweitzer-Gesellschaft, Vienna (1995);
- Member of Institute for International Relations and Intercultural Studies, Alabama University (1997);
- Honorary Member of Osterreichische Albert Schweitzer-Gesellschaft, Vienna (1997);
- Honorary Member of The International Cultural Correspondence Institute, Bombay-India (1997);
- Honorary Diploma of The Parthasarathy International Cultural Academy, Madras-India (1997);
- Honorary Diploma of The "St.Andrew" Assoc., Scotland (1998);
- Member of the Romanian Chemistry Society (2000 - 2016);
- Member of the Romanian Scientific Investigation of Art Society (2002);
- In of the European Extra LabSTECH Institution I am representative for "Al. I. Cuza" University (2001 - 2003);
- President of Romanian Inventors Forum (2003-2016);

**Member in International Juries** (ARCHIMEDES - Moscow, 2003-2012, NEW-TIMES - Sevastopol, 2006-2012, INFOINVENT - Kishinev, 2005-2016, INOVA – Zagreb, 2008-2012, INVENTICA-Bucharest, 2006-2010, PROINVENT - Cluj Napoca, 2006-2014, EUROINVENT – Iasi, 2009-2017);

### Member of Scientific Boards and reviewer of Journals (14):

- **INTERNATIONAL JOURNAL OF CONSERVATION SCIENCE**, (Print ISSN 2067-533X, Online 2067-8223), "Al.I.Cuza" University of Iasi, (SCOPUS/Web of Science), 2010-2019 – **Founder and Editor in Chief**; <http://www.ijcs.ro/>
- **APPLIED SCIENCE** – Basel, (ISSN 2076-3417)2021-2023, **Member of Scientific Board and Reviewer**, [https://susy.mdpi.com/user/edit/editor\\_file:///C:/Users/user/Downloads/Editor-Certificate-348026%20\(4\).pdf](https://susy.mdpi.com/user/edit/editor_file:///C:/Users/user/Downloads/Editor-Certificate-348026%20(4).pdf)
- **APPLIED SCIENCE** – Basel, (ISSN 2076-3417) **Gues Editor** - Special Issue "Obtaining, Characterization and Applications of Advanced Materials", 2019-2020, (Web of Science and Scopus), [file:///C:/Users/user/Downloads/Editor-Certificate-118789%20\(5\).pdf](file:///C:/Users/user/Downloads/Editor-Certificate-118789%20(5).pdf)
- **APPLIED SCIENCE** – Basel, (ISSN 2076-3417) **Gues Editor** - Special Issue "New Materials and Advanced Procedures of Conservation Ancient Artefacts", 2022-2023, (Web of Science and Scopus), [https://www.mdpi.com/journal/applsci/special\\_issues/Conservation\\_Ancient\\_Artefacts](https://www.mdpi.com/journal/applsci/special_issues/Conservation_Ancient_Artefacts)
- **APPLIED SCIENCE** – Basel, (ISSN 2076-3417) **Gues Editor** - Special Issue "Obtaining, Characterization and Applications of Advanced Materials" Vol. I (2020-2021), Vol. II (2022-2023), (Web of Science and Scopus), [file:///C:/Users/user/Downloads/Editor-Certificate-366724%20\(3\).pdf](file:///C:/Users/user/Downloads/Editor-Certificate-366724%20(3).pdf)
- **MEDITERRANEAN ARCHAEOLOGY AND ARCHAEOLOGY**, ISSN (Online): 2241-8121  
ISSN (Print): 1108-9628, (SCOPUS/Web of Science), 2018-2019 – **Member of Scientific Board and Reviewer**; <http://www.maajournal.com/editorialboard.php>
- **CHEMISTRY RESEARCH JOURNAL (An International Journal)**, ISSN 2455-8990, 2017-2019 – **Member of Scientific Board and Reviewer**; <http://chemrj.org/>.
- **CHEMISTRY JOURNAL OF MOLDOVA**. General, Industrial and Ecological Chemistry, ISSN 1857-1727 (print), ISSN 2345-1688 (online) (Web of Science), 2015-2019 – **Member of Scientific Board and Reviewer**; [http://cjm.asm.md/editorial\\_board](http://cjm.asm.md/editorial_board);
- **URBANISM. ARHITECTURĂ. CONSTRUCȚII** (Revista INCD URBAN-INCERC, ISSN 2069-0509 (print)/2069-6469(online), (SCOPUS/Web of Science), 2015-2019 – **Member of Scientific Board and Reviewer**; <http://uac.incd.ro/>
- **JOURNAL OF ARCHAEOLOGICAL SCIENCE: REPORTS** (SCOPUS, BDI), 2014-2019 – **Member of Scientific Board and Reviewer**; <https://www.journals.elsevier.com/journal-of-archaeological-science-reports/editorial-board>
- **EGYPTIAN JOURNAL OF ARCHAEOLOGICAL AND RESTORATION STUDIES**, (print ISSN 2090-4932, eISSN 2090-4940), (SCOPUS, BDI), 2011-2019 – **Member of Scientific Board and Reviewer**, <http://ejars.sohag-univ.edu.eg/>;
- **JOURNAL OF ENGINEERING STUDIES AND RESEARCH**, ISSN: 2068-7559; 2019– **Member of Scientific Board and Reviewer** <http://pubs.ub.ro/?pg=revues&rev=jesr&sc=editboard>
- **CURRENT TRENDS ON BIOSTATISTICS & BIOMETRICS** (CTBB), ISSN: 2644-1381; 2017-2020– **Member of Scientific Board and Reviewer**, <https://lupinepublishers.com/biostatistics-biometrics-journal/editorial-committee.php>

- **STUDIA ANTIQUA ET ARCHAEOLOGICA**, Universitatea „Al. I. Cuza” Iași, ISSN (B+ CNCSIS, SCOPUS), 2010-2019 – *Member of Scientific Board and Reviewer*; <http://saa.uaic.ro/about-the-journal/editorial-board/>
- **THE ANNALS OF “DUNAREA DE JOS” UNIVERSITY OF GALATI. FASCICLE IX. METALLURGY AND MATERIALS SCIENCE** (ISSN 1453-083X), (CNCSIS B+) 2006-2019 – *Member of Scientific Board and Reviewer*; <https://www.gup.ugal.ro/ugaljournals/index.php/mms/about/editorialTeam>
- **PRO-LIGNO** (ISSN 2069-7430), (CNCSIS B+) –2009-2019 - *Member of Scientific Board and Reviewer membru colegiului de redacție*, <http://www.proligno.ro/ro/editorialboard.htm>
- **EUROPEAN JOURNAL OF MATERIALS SCIENCE AND ENGINEERING** (ISSN print: 2537-4338, ISSN online: 2537-4346) – 2016 – 2019 - *Member of Scientific Board and Reviewer*; <https://ejmse.ro/editorial-board/>
- **PATRIMONY BOOK**, „Al.I.Cuza”University Publishing House, 2005-2022, Colectie Patrimoniu (coordonator serie) *coordinated series*, <https://www.editura.uaic.ro/produse/colectii/patrimoniu/1>.

**Prises and Awards (212)** at International Exhibition of Invents (Brussels, Moscow, London, Seoul, Istambul, Budapest, Warsaw, Taipei, Zagreb, Kishinew, Pittsburgh, Cairo, Geneva, Barcelona, Varna, Novi Sad, Perlis-Malaysia, Macao-China, Sevastopol, Bucharest and Iasi), which of the most important are:

- [1] Special Diploma of the European Arts Academy, (1993);
- [2] “Henri Coanda” Award, 3-rd, 2-rd and 1-st Classes. Romanian Academy (1991-1993);
- [3] Award 1-st Classes, Kishinew., 1993
- [4] “Stefan cel Mare si Sfânt” Metropolitanate of Iasi (1994);
- [5] “Dimitrie Leonida”, Award 1-st Classes, Technical Museum Bucharest (1996);
- [6] Special Award, Parthasarathy International Cultural Academy, Madras - India, (1997);
- [7] Grand Prix Gold ARCHIMEDES, Moskow, (2004);
- [8] Honorary Diploma, AGEPI, Kishinew, R.Moldova, (2002);
- [9] Honorary Price, AGEPI, Kishinew, R.Moldova, (2004);
- [10] Chevalier Degree of Inventive Merit, Brussels – Belgium (2002);
- [11] Officer Degree of Inventive Merit, Brussels – Belgium (2003);
- [12] Commandor Degree of Inventive Merit, Brussels – Belgium (2004);
- [13] Gold Archimedes, Moskow, GRAND PRIX (2005).
- [14] Commandor Degree “G. Constantinescu” – Cluj-Napoca (2005);
- [15] “Petru Poni” Award 1st Class – Iasi (2005)
- [16] Excelency Dipoma for Culture – Bucharest (2005)
- [17] Prize of National Authority for Research – MedC, Bucharest (2005),
- [18] Great Officier Degree of Inventive Merit, Brussels – Belgium (2005)
- [19] Founding member of International Innovation Club ARCHIMEDES Moskow (2005);
- [20] Honorary Academician of International Academy of Arts and Science, Verbano, Italy (2005);
- [21] Gold Medal ICEPEC, Bruxelles, 2005;
- [22] Grand Prix „Archimede de Aur” 2005;
- [23] Grand Officer Degree of Inventive Merite Order, Brussels – Belgium (2005);
- [24] Excelency Diploma – Romanian Association for Cultural Heritage, Bucharest (2005).
- [25] Excelency Diploma for Research with Gold Medal, Salonul INVENTICA 2005, Bucuresti,
- [26] Special Prize and Silver Cup, MCT-ANCS, București, 2005,
- [27] Special Prize and Gold Cup, „Pricinosti” Superiour School, Ucraina-Estonia-Belgia, 2005,
- [28] Special Prize and Gold Cup, Ajumel Academic Center, Sevastopol, 2005,
- [29] Special Prize and Cristal Cup, Pedagogical Assoc. of Inovators, Sevastopol, 2005;
- [30] Grad de Comandor Order „G. Constantinescu” Cluj-Napoca 2005;
- [31] DOCTOR HONORIS CAUSA, Balkan Academy of Science, Sofia, 2006;
- [32] Gold Medal and RUN Order, Bruxelles, 2006;
- [33] Gold Cup and Special Prize, MOO „Sociopolis in the Ukraine” (Kiev), sept. 2006;
- [34] Gold Cup and Special Prize, „Centri Sodeistvia Radiationoi Iadernoi i Ekologhiceskoi Bezopasnosti” Sevastopol, sept. 2006, Ukraina;
- [35] Attestation as Expert in Scienific Investigation and Conservation, Ministry of Culture, Bucharest, 2007;
- [36] Special Prize, Economic of the Development Agence of City Sevastopol, Ucraina, Moscova , 2007;
- [37] Order „Rojdenia”, Ajumel Academic Center, Sevastopol, Ucraina, 2008;
- [38] Grand Prix and Gold Cup, Technical University of Chișinău, 2008;
- [39] Prize of Inventors Union, R. Moldova, Chisinau, 2009;
- [40] Grand Prix „The Best International Delegation”, INOVA Zagreb, 2009;
- [41] Prize „Honor of Invention”, Taipei, 2009;
- [42] Order GOLD ARCHIMEDES (Ionation International Club of Moskow), Zagreb, 2009;
- [43] Grand Prix and Gold Cup, Technical University of Chișinău, Iași, 2009;
- [44] Grand Prix and Gold Cup, AGEPI- Chișinău, Iași , 2009;
- [45] „AS Popov” Medals, International Academy of Inventics of Sankt Petersburg, Iași, 2009;
- [46] Special Prize „Nicola TESLA”, Sevastopol 2010,
- [47] Chavalier of the Order STAR ODIN, Sevastopol, 2010,
- [48] Grand Prize „The Best International Delegation”, ATTIC Barcelona 2010;
- [49] Special Prize, International Academy of Inventics, Kiev, 2010



- [50] Special Prize, International Jury, INVENTICA 2010, Iasi;
- [51] Special Prize, National Scientific Book Exhibition, Iasi, 2010 (Scientific Conservation of the Stone Monuments);
- [52] Prize „Excelence in Research”, POLITEHNICA University of Bucuresti, 2010;
- [53] Special Prize of the Innovation Educational Association of Sevastopol, 2011;
- [54] Grand Prix of the Inventics Iranian Institute, 2011;
- [55] Special Award of the Croatian Inventors Association, 2011;
- [56] Creativity Order of the Superior School „Pricinosti” of Sevastopol, 2011;
- [57] Special Award of the Science Academy of Ukraine, 2011;
- [58] Diplom and Gold Medal of AGEPI, Kishinew, 2011;
- [59] Diplom and Gold Medal of Technical University of Moldova, Kishinew, 2011;
- [60] Diplom and Gold Medal of Medicine University of Moldova, Kishinew, 2011;
- [61] Best European Invention, Pittsburgh, 2012;
- [62] Sport & Recreation Best Invention, Zagreb/Zibenik, 2012;
- [63] Grand Prize with scarf „King Sejong Inventors Order of Merit”, Seoul, 2012;
- [64] Prize Honor of Inventions, World Invention Intellectual Property Association, Taiwan (2013);
- [65] Medalia Jubiliara a Academiei de Stiinte din Republica Moldova, 05.05.2013.
- [66] Grand Prix at Moldavian Technical University, INFOINVENT 2013, Chişinău;
- [67] Leading Inovation Award for New procedure on potabilization water, Invention Show & Technomart, IIPNF – International Intellectual Property Network Forum, Taipei, Nov. 2013;
- [68] Leading Inovation Award for Device of administration phytosanitary substances in ligneous plants, Invention Show & Technomart, IIPNF – International Intellectual Property Network Forum, Taipei, Nov. 2013;
- [69] INOVA Best International Exhibitor Award, International Invention Show - INOVA, Zagreb, 12-17 Nov. 2013;
- [70] Award for International Innovation Achievements – HALLER ProInventio Foundation, International Invention Show - INOVA, Zagreb, 12-17 Nov. 2013;
- [71] Honor of Invention – WIIPA for New Procedure on potabilization water, International Invention Show - INOVA, Zagreb, 12-17 Nov. 2013;
- [72] Honor of Invention – WIIPA for Device of administration phytosanitary substances in ligneous plants, International Invention Show - INOVA, Zagreb, 12-17 Nov. 2013;
- [73] WIIPA Order, World Invention Intellectual Property Association, Taiwan;
- [74] Special Priz Best Invention, Istambul Aydin University;
- [75] Special Award CIGIF 2013, Seoul Korea;
- [76] Certificate of Excellence in Reviewing for 2013, awarded in recognition of an outstanding contribution of the quality of the *Journal of Archaeologica Science*, Elsevier and Society for Archaeological Science, 2014;
- [77] EYRec Creative Invention Award, Paun Putra, University of Malaysia Perlis, 2014;
- [78] World Invention Intellectual Property Association Award (WIIPA - 2 prix), i-ENVEX 2014;
- [79] Korea University Invention Association Award (KUIA), i-ENVEX 2014;
- [80] Association of Young Innovator and Scientist Indonesia Award (AYISI), i-ENVEX 2014;
- [81] WIIPA Honor of Invention, Best International Exhibit, Zagreb, 2014;
- [82] Volga State University of Technology Award, Zagreb, 2014;
- [83] Distinctia In Memoriam Prof.dr.ing. Ioan POP, Technical University of Cluj-Napoca, 2014.
- [84] Speial Prize – NRCT (for Poligraph with integrated ayatem and testing method) – Bangkok, 2015;
- [85] Leading Innovation Award – IIPNF (for Artificial Halochamber for Multiple Users) – Bangkok, 2015;
- [86] Certificate of Award - WIIPA (for Artificial Halochamber for Multiple Users) – Bangkok, 2015;
- [87] Honor of Invention – Macao Innovation and Invention Association, Bangkok, 2015;
- [88] Honor of Invention – WIIPA, Bangkok, 2015;
- [89] Medal of Industrial Chemistry Research Institute of Warsaw, Krakow, 2015;
- [90] Special Award, Iraqi Association of Inventors (ISI), Chisinau, 2015;
- [91] Special Award, Toronto International Society of Innovation and Advnced Skills (TISIAS), Chisinau, 2015;
- [92] Special Award, Institutul de Genetica, Fiziologie si Protectia Plantelor al Academiei de Stiinte din Moldova, Chisinau, 2015;
- [93] The Gran Prix of the National Exhibition of Inventions INOVA – BUDI UZOR 2015, Saudi Arabia;
- [94] Awards the Project of the Volga State University of Techology, INOVA – BUDI UZOR, Russia Federation;
- [95] Prize Outstanding Innovation Award - Thai Innovation and Invention Promotion Network, Warsaw, 2015;
- [96] Medal Marie Curie for invention in Chemistry field, IWIS – International Warsaw Invention Show, 2015;
- [97] **Special Priz**, President of Iraq Inventors Association, Iasi, 2015;
- [98] A Special Award at the Kaohsiung KIDE Award Excellent Invention, Korea University Inventoin Association, Thailand, 2015;
- [99] Thailand Award for Best International Invention – The National Research Council of Thailand, Thailand, 2015;
- [100] Special Medal of China Association of Productivity Promotion Centers, Istambul, 2016;
- [101] Premiul Special al Universitatii Lucian BLAGA din Sibiu, Cluj-Napoca, 2016;
- [102] Special Award The Egyptian Inventors Syndicate for the Outstanding Performance and display Commenced by the Idea with the title of Method for determining Normal Range of Variation of Equilibrium Moisture Content, Cairo, 2016;
- [103] Leading Innovation Award, I-ENVEX, Perlis - Malaysia 2016;
- [104] Excellent Award – In Recognition of Your Outstanding Achievement and Tireless Effort in Inventing of Excellent Invention, Perlis - Malaysia 2016;
- [105] WIPA – Honor of Invention, 9th International Exhibition of Economic and Scientific Innovation -INTARG, 13-15 Jun. 2016, Katowice, Poland,

- [106] International Innovation Award of the Polish Academy of Science, Institute of Genetics and Animal Breeding, ITARG - Katowice, 2016.
- [107] Diploma International Exhibition Research and New Technologies, IRTI – Iranian Top Inventors, ITARG - Katowice, 2016.
- [108] Award of Iraqi Forum of Inventors – EUROINVENT, 2016;
- [109] Special Prize of Lucian Blaga University of Sibiu – EUROINVENT, 2016;
- [110] Premiul AGEPI, Chisinau, – EUROINVENT, 2016;
- [111] Premiul Special al Institutului de Genetica, Fiziologie si Protectia Plantelor, ASM, Chisinau, – EUROINVENT, 2016;
- [112] Special Award TUMMIAD (Turkish Inventors Association), INOVA, Zagreb, 2016;
- [113] Special Award INNOPA/TH/SA/349/II/2017, Thailand, 2017;
- [114] WIIPA Honor of Invention, Bangkok Interantional Trade and Exhibition, Thailand, 2017;
- [115] Philippine Gold Award for Invention. Manila Young Inventors Association, Bangkok Interantional Trade and Exhibition, Thailand, 2017;
- [116] HAG-Award the German Special Prize, KIT-HAG Invention Association Germany (for Entire Activity), Istanbul International Invention Fair, ISIF'17, Istanbul, 2017;
- [117] NASR Award National Association for Science and Research, Istanbul International Invention Fair, ISIF'17, Istanbul, 2017;
- [118] Special Award of the Egyptian Society for Women & Youth Inventor & the Egyptian Inventors Syndicate, Cairo, 2017;
- [119] Special Honor of Invention – TISIAS, Toronto, 2017;
- [120] Thailand Award for the Best International Invention (for the excellent invention) – National Research Council of Thailand, Warsaw, 2017;
- [121] Award of WIA NOVA, Bosnia Herzegovina, Warsaw, 2017;
- [122] FIRI Award for the Best invention, Warsaw, 2017;
- [123] Awards Innovation Award, National Council of Rectors (CNR), Inventica Iasi, 2017;
- [124] The Politehnica Bucharest Innovation Award, Inventica Iasi, 2017;
- [125] CAI AWARD Invention and Innovation, IMPEX Pittsburgh, 2017,
- [126] Pittsburgh Award of Merit, IMPEX Pittsburgh, 2017,
- [127] EUROINVENT Order Comandor for Invention Merit, Iasi, 2017;
- [128] Special Prix, NOVA Croatia, Iasi, 2017;
- [129] Jubilee Medal of Science Academy of Moldova, Iasi, 2017;
- [130] Special Prix of Chemistry Institute of Science Academy of Moldova, Iasi, 2017;
- [131] Special Award of the Egyptian Society for Women & Youth Inventor & the Egyptian Inventors Syndicate, Cairo, 2017;
- [132] Titlul Academic Senator de Onoare Academia Militara Terestra Nicolae Balcescu Sibiu, 2018;
- [133] Diploma de Excelență cu Mențiune Specială Cadet Innova Sibiu 2018;
- [134] Special Prize for the best invention, Oil and Gas National Reseqarch Institute Warszawa, Polonia, Cluj Napoca 2018;
- [135] The Politehnica Innovation Award –Bucharest, Cluj Napoca 2018;
- [136] Special Award, INNOPA TH/SA/40/2018, Bangkok, 2018;
- [137] Special Award, Association of Polish Inventors and Rationalizers, Bangkok, 2018;
- [138] Sri Lanka Gold Award for Invention, Bangkok, 2018.
- [139] Special Prix, NOVA Croatia, Iasi, 2018.

#### **Excellent results in science of conservation and chemical research:**

The three structures of metal artefacts patina theory building (primary, secondary and contamination structures); degradation and deterioration effects theory building by micro and macro structural destruction (physical state) and material alteration (chemical nature) process. The normal range of variation of hydric equilibrium of wood theory building, applied in archaeometry and impact studies for preservation process. Solion theory building for NaCl aerosols. Electrochemical Conversion of Energy, Science of materials implied in electronics, energetic, restoration and preservation of the cultural national values and biotechnology. Non-conventional procedures for the synthesis and the physic-structural, chemical and electrochemical characterization of some new materials with technical implications ("Layer-on-layer" sequential co-precipitation by ionic exchange by using the bionics system model; obtaining and characterization of the structures with stratified atomic networks with phonon-absorbent, piro- and/or photoelectric proprieties, proton conduction by the "tunneling effect" in the van der Waals bands of the compacts hexagonal marginal structures of the chalcogenides type from the stratified atoms networks, modification of the "proton-electron" mechanism for the reduction of the monophasic redox couples by there passing in reversible diphasic redox couples). Technical creativity (invents) in chemistry, metallurgy, chemical engineering, biotechnology and keeping of the cultural national values.

**Holder of Chemistry Course** (General Chemistry, Descriptive Inorganic and Organic Chemistry, Redox Systems in the Energy Conversion, Invents in Chemistry, Metals Chemistry, Structure and Reactivity of the Compounds),

**Holder of Conservation Science** (Scientific Investigation of Works of Art, Science of Materials for Restoring and Keeping of the Cultural National Values Art, Etiopatology of Works of Art Metal Restoration, Photography and Photo-grammetry; Conventional Representation in Restoration (Bachelor Degree and Master Degree in Conservation of Art; Master Degree in Conservation Old Constructions); Ecology of the Sport Systems (Master Degree in Sport),

**Holder of Environmental Science** (Ph.D. School).