CURRICULUM VITAE



PROFESSIONAL EXPERIENCE

1992-present	Professor at the Faculty of Mechanical Engineering of University "Ss. Cyril & Methodius", Skopje, Republic of Macedonia.
2005	Nominated as an international expert of UNIDO on ozone portfolio projects.
2004	Nominated as an international expert of UNEP on ozone portfolio projects.
2002-2003	Editor of the "Macedonia's First National Communication under the UN Framework Convention on Climate Change" (through UNDP).
1978-2017	Head of the Laboratory for Refrigeration, Compressors and Heat Pumps at the Faculty of Mechanical Engineering of University "Ss. Cyril & Methodius", Skopje, Republic of Macedonia.
1997-2000	National consultant for refrigeration, Ministry of Environment, supported by UNIDO.
1997-2001	As an expert took part in all steps of the Refrigerant Management Plan in Republic of Macedonia (through UNIDO).
Sep-Dec 1990	Visiting professor at the Technical University of Denmark.
1990	Short study tour in Denmark – "Danfoss", "Sabroe", "Gram".
1987-1992	Assistant professor at the Faculty of Mechanical Engineering of University "Ss. Cyril & Methodius", Skopje, Republic of Macedonia.
1986-1990	Editor in chief for "Proceedings" of the Faculty of Mechanical Engineering at University "Ss. Cyril & Methodius", Skopje.
1976-1986	Assistant at the Faculty of Mechanical Engineering of University "Ss. Cyril & Methodius", Skopje, Republic of Macedonia,
1974-1976	Thermal engineer at the Steel Factory "Skopje".

Delegate of the Executive Committee of the International Institute of Refrigeration (Paris) Member of Commissions B1 and E2 of the International Institute of Refrigeration

Member of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers)

Member of Eurammon (Association for Refrigerating Technologies with Natural Refrigerants)

Member of IIAR (International Institute of Ammonia Refrigeration), USA

Reviewer of the scientific journals "Energy and Buildings" and "International Journal of Refrigeration", published by Elsevier

Member of Committee for evaluation of PhD thesis at the Royal Institute of Technology, Sweden

President of the Organizing Committee of the International conference for Ammonia Refrigeration Technology, organized together with the International Institute of Refrigeration, Ohrid - 2005; 2007, 2009, 2011, 2013, 2015, 2017, 2019, 2021 2023.

LIST OF REFERENCES

Excerption from more of 170 references presented on scientific meetings and in journals alone and with other authors, and participations in many projects in the industry.

Pachai A., Hafner A., Ciconkov R., "Application of natural refrigerants in the industrial refrigeration and heat pumps in the future", IIR Conference on Natural Working Fluids, Trondheim, 2022.

Hafner A., Ciconkov R., "Natural refrigerants in all applications. Is it possible?", 52 HVAC/R Congress, Belgrade, 2021.

Hafner A., Ciconkov R., "Current state and market trends in technologies with natural refrigerants", IIR International Conference, Ohrid, 2021.

"Climate change and HVACR systems", 50 HVAC/R Congress, Belgrade, 2019.

"Refrigerants: There is still no vision for sustainable solutions", International Journal of Refrigeration, Vol. 68, 2018, 441-448.

"Refrigerants: long-term solutions or long-term obligations?", 48 HVAC/R Congress, Belgrade, 2017.

"IIR Conference Ohrid-2015: Ammonia and CO2 refrigeration technologies at the forefront", International Journal of Refrigeration, Vol. 63, 2016.

"Air source heat pumps as renewable energy sources?", 45 HVAC/R Congress, Belgrade, 2014.

"Computer program for load calculation of coldrooms, with incorporated databases and recommendations", Central European Congress on Food, Ohrid, 2014.

"European F-gas Regulation No. 842/2006 – Overview", 44 HVAC/R Congress, Belgrade, 2013.

"Overcoming barriers of natural refrigerants in developing countries", Invited lecture at the **UNIDO** Meeting, Vienna, 2013.

"Energy savings in buildings", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Ohrid (Macedonia), 2013.

"Description of European standard EN 378: Refrigerating systems and heat pumps - safety and environmental requirements", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Ohrid (Macedonia), 2013.

"HCFC alternative technologies with natural refrigerants", Training seminar, Supported by **UNEP**, Ashkabat (Turkmenistan), 2012.

"Heat pumps – Sustainable heating of buildings", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Bishkek (Kyrgistan), 2012.

"Refrigerating systems become increasingly heat pumps", 42 HVAC/R Congress, Belgrade, 2011.

"Computer simulation of the performance characteristic for shell-and-tube evaporators of refrigerating systems", 23 International Congress of Refrigeration, Prague, 2011.

"Ozone- and climate-friendly technologies commercially available in developing countries", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Belgrade, 2011.

"Reasons and barriers in switching to natural refrigerants in the developing countries, how to overcome them?", Eurammon workshop, Nuremberg, 2010.

"Energy - How to Save", book, English edition, publisher Energija doo, Skopje, 2010.

"Natural refrigerants in developing countries, problems and suggestions", IIR Conference on Natural Working Fluids, Sydney, 2010 (keynote lecture).

"Mathematical model and computer program for calculation of cold room capacity", *Air-Conditioning, Heating and Refrigeration, No 4*, Belgrade, 2009.

"Energy - How to save it", book in Serbo-Croatian language, Energija doo, Skopje, 2009.

ASHRAE Position Document on Natural Refrigerants; Member of the Committee (8 experts) in preparation of this document, ASHRAE, Atlanta, USA, 2009.

"New technologies in ammonia refrigerating and air-conditioning systems", Heat Transfer Engineering, Publisher Taylor & Francis, Volume 30, Issue 4 January 2009, p. 324 - 329.

"Survey on alternative solutions for the refrigerant R22", 39 HVAC/R Congress, Belgrade, 2008.

"Energy - How to save it", book in Macedonian, Energija doo, Skopje, 2008.

"New concepts of ammonia systems", in Eurammon publication "Refrigerants by Nature", Frankfurt, 2008.

"Clean Development Mechanism versus energy and environment", Int. Congress: Energy and the Environment, Opatija (Croatia), 2008.

"HFCs in the new refrigerating systems", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Tirana, 2008.

"Ammonia refrigeration technology and its applications", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Tirana, 2008.

R. Ciconkov, D. Colbourne: "Choice and selection criteria of refrigerants", Invited lecture at the **UNEP** ECA Ozone Network Meeting, Tirana, 2008.

"Energy Efficiency Projects Converted in Cost Efective Investments Using the Kyoto Protocol's CDM", 38 HVAC/R Congress, Belgrade, 2007.

"Work Characteristics of Reciprocating Compressor for Refrigeration System Developed with Computer Simulation", XXII International Congress of Refrigeration, Beijing, 2007.

"Ammonia Cold Stores and Clean Development Mechanism", Third International Green Enenrgy Conference (IGEC-III), Vasteras (Sweden), 2007.

"Defining a Multi-Criteria Decision Making Model for Improving Energy Efficiency of Ammonia Cold Stores", International Youth Conference on Energetics, Budapest, 2007.

"Ammonia cold stores renewal coupled with the Clean Development Mechanism of the Kyoto Protocol", IIR International Conference, Ohrid, 2007.

"New Technologies in Ammonia Refrigerating and Air Conditioning Systems", 37 HVAC/R Congress, Belgrade, 2006.

"Assessing / Evaluating Energy Projects for Sustainability", International symposium of ZEMAK, Ohrid, 2006.

"Additional Value to the Energy Economy deriving from Clean Development Mechanism", International symposium of ZEMAK, Ohrid, 2006.

Report on the Activities towards Implementing Commitments under the UNFCCC and the Kyoto Protocol in the R. Macedonia, Seminar organized by **UNIDO**, Vienna, 2005.

Ciconkov R., Ghoneim R.: "CFC Centrifugal Chillers - Why and How to Replace Them", 35 HVAC/R Congress, Belgrade, 2005.

Ghoneim R., Ciconkov R.: Demonstration Project on the Replacement of CFC Centrifugal Chillers in Croatia, Serbia & Montenegro, Romania and Macedonia, Project Document, **UNIDO**, 2005.

"Review of the Macedonia's First National Communication on Climate Change", *Engineering*, Engineering Institution of Macedonia, 2005.

"Ammonia Refrigerating Systems in Macedonia", Workshop within the International Conference of the International Institute of Refrigeration, Ohrid (Macedonia), 2005.

"Ein modulares physikalisches Modell zur Simulation von Kälteanlagen", Special edition of University of Applied Science Georg-Simon-Ohm, Nuremberg, 2004.

Baxton V., Ciconkov R.: Mid-term Evaluation of GEF-Financed non-Investment Ozone-Depleting Substance Projects for Countries with Economies in Transition - Azerbaijan, Estonia, Kazakhstan, Latvia, Lithuania, Tajikistan, Turkmenistan and Uzbekistan, *United Nations Environment Programme*, Nairobi, 2004.

"Natural Refrigerants - Trend to the Future", 35 Congress for Air-Conditioning, Heating and Refrigeration, Belgrade, 2004.

"DDC System Increases the Energy Efficiency of HVAC/R Systems", 35 Congress for Air-Conditioning, Heating and Refrigeration, Belgrade, 2004.

"Simulationsprogramme für Kälteanlagen - Einsatz in Ausbildung und Praxis", Technik am Bau, No. 3, 2004.

"Survey on the First National Communication under the United Nations Framework Convention on Climate Change", *Ecology and Protection of Environment, Vol 8, No 1/2,* Skopje, 2003.

"Global Warming – Causes, Consequences and Measures", *Ecology and Protection of Environment, Vol 8, No 1/2,* Skopje, 2003.

"Computation of Thermophysical Properties of Working Fluids in Refrigerating and Air Conditioning Systems", *Proceedings of the Faculty of Mechanical Engineering, No 22/2,* Skopje, 2003.

"DDC System – Contemporary Way of Building Automatisation System", 34 Congress for Air-Conditioning, Heating and Refrigeration, Belgrade, 2003.

"Climate Change - The First National Communication of the Republic of Macedonia", *Proceedings of the Faculty of Mechanical Engineering, No 22/1,* Skopje, 2003.

"National Action Plan for Climate Change – Energy Sector", II Congress of Ecologists of the Republic of Macedonia, Ohrid, 2003.

"Simulationsprogramme für Kälteanlagen- Werkzeuge für Lehre und Praxis (Simulation Software for Refrigeration Plants - Tool for Education and Practice)", *Deutsche Kälte-Klima-Tagung*, Bonn, 2003.

"Computer Simulation of the Performance Characteristic for Condenser of Refrigeration System", XXI International Congress of Refrigeration, Washington DC, 2003.

"Energy Saving – Contribution to the Environment", Invited lecture presented within the International Energy Exhibition, Skopje, 2003.

"Energy Saving", Invited lecture presented on five workshops in Macedonia, Organized by the Ministry of Environment and Physical Planning and **UNDP** – Skopje, 2003.

Editor in Chief of the "Macedonia's First National Communication for Climate Change under the UNFCCC", Supported by GEF, implemented trough **UNDP**, Ministry of Environment and Physical Planning, 2003.

"Simulation des Leistungsverhaltens von Rohrbündelverdampfern und gesamten Kälteanlagen", Ki Luftund Kältetechnik, No 4, 2003.

"Kolbenverdichter – Simulation des Leistungsverhaltens beim Einsatz in einem Verflüssigungssatz", *Ki Luft- und Kältetechnik,* No 3, 2003.

"Rohrbündelverflüssiger – Simulation des Leistungsverhaltens", Ki Luft- und Kältetechnik, No 2, 2003.

"The Contribution of the Refrigerating and Air Conditioning systems to the Global Warming – TEWI Concept", *Air-Conditioning, Heating and Refrigeration, No 3*, Belgrade, 2002.

"Global Warming, Causes, Consequences and Activities for Prevention", 33 Congress for Air-Conditioning, Heating and Refrigeration, Belgrade, 2002.

"TEWI Concept to estimate a Global Warming of Refrigerating and Air Conditioning systems", *Proceedings of the Faculty of Mechanical Engineering, No 21/1,* Skopje, 2002

"Kältetechnik - gelöste Beispiele", Faculty of Mechanical Engineering, Skopje, 2002.

"Refrigerants – Latest Trends", Invited lecture to the University of Applied Science of Nuremberg, Nuremberg, 2002.

"Refrigerating and Air Conditioning Systems: Dilemmas in the Future Development", *International Symposium of Association of Power Engineers of Macedonia*, Struga (Macedonia), 2002.

"Contribution to the Strategy of Energy Efficiency", *International Symposium of Association of Power Engineers of Macedonia*, Struga (Macedonia), 2002.

"Posibilities of Energy Saving", Workshop, Hotel Aleksandar Palace, Skopje, 2002.

"Climate Change - Global Warming", *Proceedings of the Faculty of Mechanical Engineering, No 20/2,* Skopje, 2001.

"Ammonia – a Refrigerant in the Past and Present, more and more in the future", *Proceedings of the Faculty of Mechanical Engineering, No 20/1,* Skopje, 2001.

"Refrigerating and Air Conditioning Systems in Republic of Macedonia Regarding to the Use of CFC Fluids", *Proceedings of the Faculty of Mechanical Engineering, No 19/2,* Skopje, 2001.

"Refrigerant Management Plan in Republic of Macedonia" – Preparation in the Specification of equipment for servicing, recovery and recycling. Distribution of equipment and establishing of recycling centers. *Project supported by Multilateral Fund of Montreal Protocol implementing trough UNIDO*. 1999 - 2001.

"Refrigerant Management Plan in Republic of Macedonia" – Training courses, *Project supported by Multilateral Fund of Montreal Protocol implementing trough* **UNIDO**. Principal in the training courses. 1999 - 2001.

"Refrigerant Management Plan, Realization in Developing Countries, Problems and Suggestions", *Joint Conference of the International Institute of Refrigeration*, Dubrovnik (Croatia), supported by **UNEP**, 2001.

"Ammonia: Natural refrigerant in the future, a future for the nature", *Air Conditioning, Heating and Refrigeration, No 2,* Belgrade, 2001.

"Refrigeration : Solved Examples", Book, 1st Edition, *Faculty of Mechanical Engineering*, Skopje, 2001. (This book is included in the ASHRAE Publication Catalogue and web site www.ashrae.org.)

Annual Reports 1997, 1998, 1999, 2000, Country Programme for phasing out of ODS have been approved for the Republic of Macedonia by the Multilateral Fund of the Montreal Protocol through **UNIDO** as an implementing agency, Skopje, 1997 – 2000.

"Refrigeration and Air Conditioning Units – Maintenance and Servicing", Training Manual, *Published by the Ministry of Environment, supported by the Multilateral Fund of the Montreal Protocol through* **UNIDO** *as an implementing agency,* Skopje, 2000.

"Refrigeration – Instructions and Properties", *Brochure published by the Ministry of Environment, supported by the Multilateral Fund of the Montreal Protocol through UNIDO as an implementing agency, Skopje, 1999.*

"To keep the Ozone Layer", *Brochure published by Ministry of Environment, supported by the Multilateral Fund of the Montreal Protocol through* **UNIDO** as an implementing agency, Skopje, 1999.

"Refrigerant Recovery and Recycling Course", *Certificate of training the trainers, Ellis Training Centre*, Cuffley (UK), supported by **UNIDO**, 1999.

"New Alternative Refrigerants", Seminar at TEHNOMA International Exhibition, Skopje, 1999.

"Macedonian Experiences for Protection of the Ozone layer", *VII Meeting of the Macedonian Society of Thermal Engineers*, Ohrid (Macedonia), 1999.

"Situation Regarding to Refrigerating Equipment and Refrigerants in Republic of Macedonia", VII Meeting of the Macedonian Society of Thermal Engineers, Ohrid (Macedonia), 1999.

"Simulation of Work Characteristics for Air Coolers (evaporators) in Refrigerating Machines", VII Meeting of the Macedonian Society of Thermal Engineers, Ohrid (Macedonia), 1999.

Improvement of air conditioning system in the factory "Makpromet" - Stip, Expertise, Skopje, 1998.

"Harmful Influence of CFCs on the Ozone Layer, Alternatives and Licensing of Service Technicians", *Workshop in organization by the Ministry of Environment*, Skopje, 1998.

"Preparation of a Refrigerants Management Plan", *Project for phasing out of ODS have been approved for the Republic of Macedonia by the Multilateral Fund of the Montreal Protocol through UNIDO as an implementing agency*, Skopje, 1998.

"Alternative Solutions for the CFC Fluids in the Refrigerating systems", *Proceedings of the Faculty of Mechanical Engineering, No 2,* Skopje, 1997.

"Survey to the Situation for a Substitution of the CFC Fluids", *VI Meeting of the Macedonian Society of Thermal Engineers,* Ohrid (Macedonia), 1997.

"Mathematical Simulation of the Procedure for Cooling Load Calculation for the Coldrooms", VI Meeting of the Macedonian Society of Thermal Engineers, Ohrid (Macedonia), 1997.

"Refrigerants, Situation Today and Future Development", XXVI Congress for Heating, Refrigeration and Air Conditioning of FR Yugoslavia, Belgrade, 1995.

"The Damage of Ozone Layer from the Influence of CFC fluids and their Contribution on the Greenhouse Effect", *Proceedings of the Faculty of Mechanical Engineering, No 2,* Skopje, 1995.

"CFC Fluids and Their Harmful Influence", *Ecology and Protection of Environment, Vol 3 No 1,* Skopje, 1995.

"New Refrigerants in the Refrigeration Systems", *V Meeting of the Macedonian Society of Thermal Engineers,* Ohrid (Macedonia), 1995.

"Fin Coil Heat Exchangers, Simulation and Computer Programme", V Meeting of the Macedonian Society of Thermal Engineers, Ohrid (Macedonia), 1995.

"Simulation of the Shell-and-tube Condensers of the Refrigeration Machines with Superheated and Subcooled Refrigerant", *Proceedings of the Faculty of Mechanical Engineering*, Skopje, 1994.

"Complex Simulation of Processes in Shell-and-tube Condensers of the Refrigeration Machines", *IV Meeting of the Macedonian Society of Thermal Engineers,* Ohrid (Macedonia), 1993.

"Computer Programme for Thermodynamic Computation of Shell-and-tube Heat Exchangers", *IV Meeting of the Macedonian Society of Thermal Engineers*, Ohrid (Macedonia), 1993.

"Simulation of the Air-Coolers of the Refrigeration Machines", *III Meeting of the Macedonian Society of Thermal Engineers*, Skopje, 1991.

"Simulation of the Shell-and-tube Condensers of the Refrigeration Machines", *III Meeting of the Macedonian Society of Thermal Engineers,* Skopje, 1991.

"Introduction in the Refrigeration Software", Seminar, *Refrigeration Laboratory at the Technical University of Denmark*, Copenhagen, 1990.

"Heat Pumps and Recuperation of Heat", Research Project within *the Macedonian Academy of Science and Art*, Skopje, 1990.

"Prediction of the Performance of Refrigeration Reciprocating Compressors", *Proceedings of the Faculty of Mechanical Engineering*, Skopje, 1989.

"Thermal Characteristics for Shell-and-tube Condenser of the Refrigerating Machines", *Proceedings of the Faculty of Mechanical Engineering*, Skopje, 1988.

"Compressors and Refrigeration Plants" (in Macedonian), a high school book, Skopje, 1987.

"Optimization of the Heat Pump System in a Greenhouse Complex with the Utilization of Heat from the Geothermal Water", XVII International Congress of Refrigeration, Vienna, 1987.

"Optimisation of Refrigeration Plants during Projecting with the Aid of a Computer", *Air Conditioning, Heating and Refrigeration, No 4,* Belgrade, 1987.

Possibilities of use of low temperature thermotransformers for utilization of waste heat in industry and geothermal water in Macedonia, Scientific project financed by the Ministry of Science, Skopje, 1986.

"Optimisation of the Refrigeration Machines", Dissertation Thesis, *University* "Ss. Cyril & Methodius", Skopje, 1986.

"The Optimisation of Heat Exchangers in Refrigeration Plants with the Aid of a Computer", *Int. Centre for Heat and Mass Transfer, XVIII Int. Symposium,* Dubrovnik, Croatia, 1986.

"45 MW Heat Pump within a Heating Power Station", *Meeting of the International Institute of Refrigeration* - Commission E2, Trondheim (Norway), 1985.

"Analyses of the Thermal Characteristics for Shell-and-tube Evaporator at the Refrigeration Machines", *Proceedings of the Faculty of Mechanical Engineering*, Skopje, 1984.

Model-Plant of Heat Pump, Main Project, Design, Installation and Test, *Refrigeration Laboratory at Faculty of Mechanical Engineering, University "Ss. Cyril & Methodius"*, Skopje, 1984.

Compressor's Station and Installations of Compressed Air for the Factory "Goteks", Main Project, Skopje, 1983.

"Utilisation of Waste Heat from Skopje Steel Plant Using Heat Pumps as a Significant Component of the District Heating and Electric Power Systems", *XVI International Congress of Refrigeration*, Paris, 1983.

Hot water supply in textile factory "Goteks" - Gostivar, Main project, Skopje, 1983.

Utilization of geothermal energy in the industry in Kocani, Study, Skopje, 1982.

Rationalization of Heat in the Textile Factory "Makedonka" - Stip, Study, Skopje, 1982.

"Theoretical and Practical Possibilities of the Usage of Low Temperature Compressor's Thermal Transformers in Industry and Energetics", *Termotehnika, No 2,* Belgrade, 1982.

Project for Reconstruction of the Station for Production of Oxygen, Nitrogen and Argon, Steel Plant "Skopje", Skopje, 1981.

"Techno-economic Optimisation of Shell-and-tube Evaporators of the Refrigeration Machines", *II Meeting* of the Macedonian Society of Thermal Engineers, Skopje, 1981.

"Thermodynamic and Dimensional Computations in Refrigeration" (in Macedonian), Book, *University "Ss. Cyril & Methodius",* Skopje, 1981.

"The Heat Pump, a Challenge for Profitable Greenhouse Production", *Yugoslavian meeting for greenhouse production*, Dojran, (Macedonia), 1981.

"A New Possibility for Appliance and Air Refrigeration Machine", *Proceedings of the Faculty of Mechanical Engineering*, Skopje, 1980.

Utilization of waste heat in Jugohrom factory, Project, Skopje, 1980.

Heating and air conditioning in PTT-Strumica, Main project, Skopje, 1979.

Relevant factors for macro projecting of long term development for the complex energetics in Macedonia, Scientific work financed by Ministry of science, Skopje, 1979-1980.

Heating and air conditioning in PTT-Bitola, Main project, Skopje, 1979.

Heating, air conditioning and compressed air in the factory Cvetan Dimov - Alkaloid, Main project, Skopje, 1977.

Public awareness campaigns for the ozone protection and climate change on TV, radio and newspapers. Over 100 appearance in the period since 1997.

Computer programmes in refrigeration and implementation of alternative refrigerants. Participation on the exhibition IKK (International Kälte Klima) - Nuremberg in 1994, 1996, 1998, 2000, 2002, 2004, 2006 and Chillventa in 2008, 2010, 2012, 2014, 2016 and 2018 with own stand where Refrigeration Software was presented.