



Academic Personnel Short Profile / Short CV

University:	Frederick University
Surname:	Christodoulou
Name:	Christodoulos
Rank/Position:	Professor
School:	Engineering
Department:	Mechanical Engineering
Scientific Domain:	Energy Systems Specialization : Oil & Gas Engineering/Manufacturing Processes and Materials

Academic qualifications				
Qualification	Year	Awarding Institution	Department	Thesis title (Optional Entry)
Ph.D.	1987-90	Carnegie-Mellon University, Pittsburgh, PA, USA	Metallurgical Engineering & Materials Science	Magnetic and Metallurgical Characteristics of the Pr-Co-B Ternary System
M.Sc.	1985-87	Kansas State University, Manhattan, KS, USA	Chemical Engineering	Fabrication of Mm(Dy)-Fe-B Sintered Permanent Magnets
5-Year Diploma	1979-84	Polytechnic School, Aristotle University of Thessaloniki, Thessaloniki, Greece	Chemical Engineering	Catalysts for the Hydrogen- Gasification of Lignite

Employment history in Academic Institutions/Research Centers				
Period of employment		Employer	Location	Position
From	To			
2007/09	to date	Frederick University	Nicosia, Cyprus	Professor Department of Mechanical Engineering, School of Engineering and Applied Sciences
2021/11	2023/12	CyGas (ΔΕΦΑ)	Nicosia, Cyprus	Board Member
2018/06	to date	CYRUS AE	Athens, Greece	Senior Research Consultant, co-owner
2017/06	To date	Hy-Cosmetics (A.M.C.A) Ltd	Nicosia, Cyprus	Senior Research Consultant, co-owner
2003/05	2007/09	Frederick Institute of Technology	Nicosia, Cyprus	Professor Department of Mechanical Engineering
2003/08	to date	Hystore Tech Ltd	Nicosia, Cyprus	Senior Research Consultant, co-owner
2000/04	2003/05	Frederick Institute of Technology	Nicosia, Cyprus	Associate Professor Department of Mechanical Engineering
1995/07	2000/04	Frederick Institute of Technology	Nicosia, Cyprus	Adjunct Associate Professor Department of Mechanical Engineering
1995/07	2007/07	Frederick Institute of Technology	Nicosia, Cyprus	Director of Frederick Research Center
1990/09	1995/05	Central Research Institute of Mitsubishi Materials Corporation	Omiya, Saitama, JAPAN	Lecturer & Research Associate
1987/05	1990/05	Department of Metallurgical Engineering & Materials Science, Carnegie-Mellon University	Pittsburgh, PA, USA	Teaching and Research Assistant
1985/01	1987/05	Department of Chemical Engineering and Department of Physics, Kansas State University	Manhattan, KS, USA	Teaching and Research Assistant

1984/08	1984/11	"SODAP" Wine Industry	Paphos, Cyprus	Production Engineer (Grape quality control)
1982/08	1982/10	"TITAN" Cement Industry	Thessaloniki, Greece	Practicing Engineer
1981/08	1981/12	Hellenic Sugar Industry	Thessaloniki, Greece	Practicing Engineer

Key refereed journal papers, monographs, books, conference publications etc.						
Ref. Number	Year	Title	Other authors	Journal and Publisher / Conference	Vol.	Pages
1	2024	Fuel Savings and Reduction of Exhaust Gas Emissions by Application of HHO Technologies on Existing Internal Combustion Engine (ICE) Vehicles	Christina Ch. Christodoulou, Christodoulos N. Christodoulou	3rd Doctoral Colloquium of the Cyprus Rectors' Conference, Nicosia, April 13, 2024		
2	2024	Green Hydrogen Production by Catalytic Water Decomposition of Recycle Aluminium: Application to a H2/Fuel Cell Electric Scooter	Demetris Hadjipetrou, Christodoulos N. Christodoulos	3rd Doctoral Colloquium of the Cyprus Rectors' Conference, Nicosia, April 13, 2024		
3	2023	Fuel Savings and Reduction of Exhaust Gas Emissions by Application of HHO Technologies on Existing Internal Combustion Engine (ICE) Vehicles	Christina Ch. Christodoulou, Christodoulos N. Christodoulou	7 th International Conference on Renewable Energy Sources & Energy Efficiency, RESEE 2023, Oct 12-14, 2023, Nicosia-Cyprus		
4	2023	Green Hydrogen Production by Catalytic Decomposition of Recycle Aluminium: Application to a H2/Fuel Cell Electric Scooter	Demetris Hadjipetrou, Christodoulos N. Christodoulou and Kypros A. Demetriou	7 th International Conference on Renewable Energy Sources & Energy Efficiency, RESEE 2023, Oct 12-14, 2023, Nicosia-Cyprus		

5	2023	An outline of a Business Plan for the development of a small vertical take-off and landing UAV with dedicated Hydrogen fuel cell (HyFly-VTOL)	Menikou, M., Karagiorgis, G., Christodoulou C.	7th International Conference on Renewable Energy Sources and Energy Efficiency – Energy Security, Nicosia, Cyprus, 12-13 October, 2023		
6	2021	Mapping of the Cyprus energy storage potential: Implications in the penetration of renewables and the operational mode of the conventional units	George Tzamalīs, Anthi Hadjipetrou, Christodoulos Christodoulou, Athanasios Katsanevakis, Dimitris Konstandinidis, George Partasides, Maria-Eleni Delenta,	14th International Scientific Conference on Energy and Climate Change, 13-15 October 2021		
7	2021	Study on the operation and energy demand of dual-stage Metal Hydride Hydrogen Compressors under effective thermal management	Evangelos I.Gkanas, Emmanuel Stamatakis, Christodoulos N..Christodoulou, GeorgeTzamalīs, George Karagiorgis, Alexander Chroneos, Navaratnaraj Kuganathan, Martin Khzouz, Athanasios K.Stubos,	International Journal of Hydrogen Energy	Vol. 46 Issue 57	29272-29287
8	2020	Numerical investigation on the operation and energy demand of a seven-stage metal hydride hydrogen compression system for Hydrogen Refuelling Stations	Evangelos I. Gkanas,, George Tzamalīs, Emmanuel Stamatakis, Alexander Chroneos, Konstantinos Deligiannis, George Karagiorgis, Athanasios K. Stubos	Renewable Energy, Part 1	Vol 147	164-178

9	2018	Metal hydride hydrogen compressors: Current developments & early markets”, Renewable Energy	2Emmanuel Stamatakis, Emmanuel Zoulias, George Tzamalīs, Zoe Massina, Vassilis Analytis and Athanasios Stubos	Renewable Energy	127	850-862
10	2018	Metal Hydride Compressor (MHC) for Hydrogen Compression to Pressure of more than 300bar	G. N. Karagiorgis,.G. Tzamalīs, D. P. Hadjipetrou, K. G. Deligiannis, M. Odysseos, F. Peru, M. Senholdt, V. Analytis, E. Stamatakis and A. Stubos	Proceedings of 6 TH INTERNATIONAL CONFERENCE ON RENEWABLE ENERGY SOURCES & ENERGY EFFICIENCY, Nov. 1-2, 2018, Nicosia, Cyprus		265-274
11	2017	Design, Development, Construction and Operation of a Novel Metal Hydride Compressor	Georgios Karagiorgis, Henrik von Storch, Georgios Tzamalīs, Konstantinos Deligiannis, Demetrios Hadjipetrou, Marios Odysseos, Martin Roeb, Christian Sattler	International Journal of Hydrogen Energy	42(17)	1-11
12	2013	The effect of compositional changes on the structural and hydrogen storage properties of (La–Ce)Ni ₅ type intermetallics towards compounds suitable for metal hydride hydrogen compression	M. Odysseos, P. De Rango, E.K. Hlil, T. Steriotis, G. Karagiorgis, G. Charalambopoulou , T. Papapanagiotou, A. Ampoumogli, V. Psycharis, E. Kouloukīs,D. Fruchart, A. Stubos	Journal of Alloys and Compounds	580(S 1)	S268–S270

13	2016	Vehicle natural gas internal combustion engine analysis and comparison with conventional gasoline engine	Chasos, C. A., Vasiliou, V. A., Karagiorgis G. N.	Proceedings of the 5 th International Conference on Renewable Energy Sources & Energy Efficiency – NewChallenges. Hilton Hotel, Nicosia, Cyprus, 5 – 6 May, 2016		
14	2013	Emissions measurements of naturally-aspirated and turbo-charged Diesel internal combustion engines for various biodiesel blends	Chasos, C. A., Karagiorgis G. N.	International Journal of Sustainable Energy DOI: 10.1080/14786451.2014.895355		
15	2006	Intermetallic hydrides based on (Zr-Ti)(Fe-Cr) ₂ type of compounds	S. S. Makridis, Th. A. Steriotis, M. Konstantakou, M. Daniil, E. S. Kikkinides and A. K. Stubos,	Trans Tech Publications Ltd., Switzerland, Materials Science Forum	514-516	666-671
16	2004	A Review on Water Electrolysis	E. Zoulas, E. Varkaraki, N. Lymberopoulos, George N. Karagiorgis	The Cyprus Journal of Science & Technology (TCJST)	4(2)	41-71
17	1993	Preparation, structural and magnetic properties and stability of interstitial Sm ₂ Fe ₁₇ -carbo-nitro-hydrides	T. Takeshita,	J. Alloys and Compounds	198	1-24

Exhibitions					
Ref. Number	Date	Topic	International / Local	Location	Role in Exhibition
1	2023	Fuel Savings and Reduction of Exhaust Gas Emissions by Application of HHO Technologies on Existing Internal Combustion Engine (ICE) Vehicles	7 th International Conference on Renewable Energy Sources & Energy Efficiency, RESEE 2023,	Oct 12-14, 2023, Nicosia-Cyprus	presentation
2	2023	Green Hydrogen Production by Catalytic Decomposition of Recycle Aluminium: Application to a H2/Fuel Cell Electric Scooter	7 th International Conference on Renewable Energy Sources & Energy Efficiency, RESEE 2023,	Oct 12-14, 2023, Nicosia-Cyprus	presentation
3	2022	Application of Hydrogen Technologies for existing maritime Vessels	Cyprus Maritime Technology Forum	Limassol-Cyprus, October 13, 2022	presentation
4	2021	RES & H2 Technologies and Applications	Cyprus Hydrogen Association	Webinar, June 16, 2021, Nicosia – Cyprus	presentation
5	2018	Metal Hydride Compressor (MHC) for Hydrogen Compression to Pressure of more than 300bar	6th International Conference on Renewable Energy Sources & Energy Efficiency - New Challenges, Nov. 1-2, 2018,	The University of Cyprus, Nicosia, Cyprus	presentation

6	2018	Innovative Metal Hydride Compressor (MHC) for Hydrogen Compression to Pressure of more than 300bar”,	International Conference on Deregulated Electricity Market Issues in South-Eastern Europe (DEMSEE2018), 20-21 September 2018,	Frederick University, Nicosia, Cyprus	presentation
7	2017	Technology Transfer & Knowledge Exchange in RES & H2 Technologies and Applications”,	PELAGOS: Capacity Building on Entrepreneurship & Technology Transfer, Nov 28, 2017,	Research Promotion Foundation, Nicosia - Cyprus	presentation
8	2017	Low temperature metal hydride materials, tanks and systems for practical applications	7th INTERNATIONAL CONFERENCE on FUNDAMENTALS and DEVELOPMENT of FUEL CELLS	Stuttgart, Germany, Jan 30 to Feb 3, 2017	presentation
9	2013	Hydrogen applications and the vision of Cyprus towards the “hydrogen economy”	Invited Talk	University of Cyprus, April 10, 2013	presentation
10	2012	Hydrogen applications and the vision of Cyprus towards the “hydrogen economy”	1st Conference on Power Options for the Eastern Mediterranean Region (POEM	Limassol, Cyprus	presentation
			2012), 19-21 November 2012		
11	2009	Αυτόνομη παραγωγή, καθαρισμός και αποθήκευση «πράσινου» υδρογόνου από Ανανεώσιμες Πηγές Ενέργειας (ΑΠΕ) με τη χρήση υβριδικού συστήματος Φωτοβολταϊκών/Ανεμογεννήτριας	9ο Εθνικό Συνέδριο για τις Ήπιες Μορφές Ενέργειας,	Γεροσκήπου, Πάφος – Κύπρος 26-28 Μαρτίου 2009	presentation

12	2009	Ανανεώσιμες Πηγές Ενέργειας (ΑΠΕ) και Υδρογόνο (H ₂)	Η ακαδημαϊκή έρευνα στον Τομέα της Ενέργειας για Αντιμετώπιση των Κλιματικών Αλλαγών	Δημοσιογραφική Εστία, 19 Μαρτίου 2009, Λευκωσία-Κύπρος	presentation
13	2008	Renewable Energy Sources (RES) electricity storage in the form of “green” hydrogen”,	Deregulated Electricity Markets Issues in South-Eastern Europe (DEMSEE 2008),	September 22-23, 2008, Hilton, Nicosia-Cyprus	presentation
14	2007	“Green” electricity production by a grid-connected H ₂ /fuel cell in Cyprus	Renewable Energy Sources & Energy Efficiency Conference,	September 28-30, 2007, Hilton Park, Nicosia-Cyprus	presentation

Research Projects				
Ref. Number	Date	Title	Funded by	Project Role
1	2023-2024	Hydrogen enhanced efficiency of Ship/Heavy Truck ICE Engines and Central Heating Boilers Hy-Engine-Heat-CONCEPT/0722/0050	RPF	Scientific Coordinator/Researcher
2	2018-2021	INTEGRATION OF INNOVATIVE GREEN TECHNOLOGIES ON EXISTING PUBLIC TRANSPORTATION BUSes for 5% to 30% FUEL SAVINGS (BUS-FUEL-SAVINGS)	RPF	Scientific Coordinator/Researcher
3	2018-2020	Storage & Renewables Electrifying Cyprus (SREC)	RPF	FRC Researcher
4	2014-2018	Advanced Metal Hydride Hydrogen Compressors – Pilot Development and Market Penetration “ATLAS-MHC”	FP7-PEOPLE-2013-IAPP/612292	Senior Consultant
5	2010-2014	Advanced Metal Hydride Tanks for Intergraded Hydrogen Applications “ALTAS-H ₂ ”	FP7-PEOPLE-IAPP-2009/251562	Senior Researcher

6	2005-2009	Promotion and Consolidation of all RTD activities for renewable distributed generation technologies in the Mediterranean region, DISTRES	FP6-2004-INCO-MPC-3	Senior Researcher
7	2004-2009	The birth of a EUropean Distributed EnErgy Partnership that will help the large-scale implementation of distributed energy resources in Europe, EU-DEEP	FP6-2002-Energy-1, SES6-CT-2003-503516/Energie	Senior Researcher
8	2005-2007	Grid-connected Photovoltaic substation with parallel electricity storage in the form of hydrogen	RPF	Scientific Coordinator/Researcher
9	2004-2007	Distributed energy generation with the use of H ₂ /Fuel Cells, with zero CO ₂ emissions	RPF	Scientific Coordinator/Researcher
10	2004-2007	Hydrogen production, purification and storage with the use of Renewable Energy Sources, such as Solar and Wind Energy	RPF	Scientific Coordinator/Researcher
11	2004-2005	Metal-bonded magnets (Sm ₂ (Co-Fe-Cu-Zr) ₁₇) for high temperature applications	RPF	Scientific Coordinator/Researcher
12	2002-2008	Cluster Pilot Project for the Integration of Renewable Energy Sources into European Energy Sectors Using Hydrogen (H ₂), RES ₂ H ₂	Contract No. ENK5-CT-2001-00536 / Energie	Senior Researcher
13	2002-2004	Zn/Al-Metal-bonded magnets (Nd-(Fe-Co)-B, Sm-Fe-N) for high temperature applications	RPF	Scientific Coordinator/Researcher
14	2003-2003	Combined Cycle Power Plant with Integrated Low Temperature Heat, NAS-LOTHECO”	ENK5-CT2000-00063/Energie	Senior Researcher
15	2000-2003	Novel Magnetic Materials for High Temperature Applications, HITEMAG	G5RD-CT-2000-00213/ Growth	Senior Researcher
16	1999-2001	Application of Hydrogen Technology for the Industrial Production of Hi-Tech Materials	RPF	Scientific Coordinator/Researcher

Academic Consulting Services and/or Participation in Councils / Boards/ Editorial Committees				
Ref. Number	Period	Organization	Title of Position or Service	Key Activities
1	2007-2024	Institute of Environment and Sustainable Development of DH.SY	Founding Member, Specialist on Energy and Transportation	Organizing special events, seminars, presentations on Environmental issues
2	2012-2024	International Scientific Journals: Crystals, Central European Journal of Chemistry	Reviewer of papers	Expertise in Materials
3	2012-2024	International Scientific Journals: International Journal of Hydrogen Energy, Journal of Power Technologies	Reviewer of papers	Expertise in Hydrogen
4	2024	Committee	Substitute member of the electoral/judgment committee for the position of Professor at CENTRE FOR RESEARCH & TECHNOLOGY HELLAS, CHEMICAL PROCESS & ENERGY RESOURCES INSTITUTE (CPERI), Discipline: Ανάπτυξη και χαρακτηρισμός προηγμένων ανόργανων υλικών για ενεργειακές και περιβαλλοντικές διεργασίες μειωμένου ή μηδενικού ανθρακικού αποτυπώματος	Chemical Engineering
5	2013-2023	Committee	International Scientific Committee member of the International Conference on Renewable Energies and Energy Efficiency	RES & H2

6	2016	Committee	Member of the special 7-member committee for a position of an Assistant Professor at School of Engineering, Department of Environmental and Natural Resources Management, University of Patras, Feb 3, 2016,	Chemical Engineering
7	2016	Committee	Member of the special 7-member committee for a position of a Professor at ATEI Thessalonikis	Chemical Engineering
8	2016	Committee	Assessor of two candidates for a position of an Associate Professor at ATEI Thessalonikis, July 25, 2016	Chemical Engineering
9	2014	Committee	Member of the special 7-member committee for a position of a Professor at Polytechnic School of Aristotle University of Thessaloniki, July 1, 2013, External assessor for the position of a Professor at TEI ΠΕΙΡΑΙΑ	Chemical Engineering

Awards / International Recognition			
Ref. Number	Date	Title	Awarded by:
1	2023	EU Project "SHERLOHCK", "SUSTAINABLE AND COST-EFFICIENT CATALYST FOR HYDROGEN AND ENERGY STORAGE APPLICATIONS BASED ON LIQUID ORGANIC HYDROGEN CARRIERS : ECONOMIC VIABILITY FOR MARKET UPTAKE"	Mid-Term Reviewer for Clean Hydrogen JU
2	2017	7 TH INTERNATIONAL CONFERENCE on FUNDAMENTALS AND DEVELOPMENT OF FUEL CELLS, "Low temperature metal hydride materials, tanks and systems for practical applications", Stuttgart, Germany	Invited Speech
3	2014	EU Project "BOR4STORE, Fast, reliable and cost effective boron hydride based high capacity solid state hydrogen storage materials"	Mid-Term Reviewer for FCH JU

4	2014	EU project "EDEN, High Energy DENSity Mg-Based metal hydrides storage system"	Mid-Term Reviewer for FCH JU
5	2012	POEM 2012, November 20, 2012, "Hydrogen applications and the vision of Cyprus towards the hydrogen economy"	Invited talk
6	1987-2000		
7	2002	Award for participation in the program «Μαθητές στην Έρευνα και Ανάπτυξη – ΜΕΡΑ»	Research Promotion Foundation (RPF)
8	2000	Frederick Research Center, Innovation Award	by the Cyprus Employers & Industrialists Association
9	2001-2006	Certificate of Appreciation for dedicated work in research and development and significant contribution in research projects at Frederick Institute of Technology	Frederick Institute of Technology
10	2000-2006	Certificate of Appreciation for the commitment and contribution to the successful outcome of Accreditation procedure at Frederick Institute of Technology	Frederick Institute of Technology
11	1987-2000	Patents 1. <i>"Multiphase permanent magnets of Fe-B-MM type"</i> ,	

		<p>US 34862/06.04.1987, EU 88303018.1/11/05/1988, Ford Motor Company, USA, 1987</p> <p>2. <i>"Sm₂Fe₁₇-nitride-based permanent magnets prepared by rapid solidification"</i>, Mitsubishi Materials Corporation, JP 3-287049, Japan, 1991</p> <p>3. <i>"Sm₂Fe₁₇-carbides prepared by gas phase carbonation"</i>, Mitsubishi Materials Corporation, JP 4-26204, Japan, 1992</p> <p>4. <i>"Sm₂Fe₁₇-nitride-based permanent magnets prepared by HDDR"</i>, Mitsubishi Materials Corporation, JP 4-351660, Japan, 1992</p> <p>5. <i>"Anisotropic Sm₂Fe₁₇-nitride-based permanent magnet powders prepared by special hydrogen treatment"</i>, Mitsubishi Materials Corporation, JP 5-27365, Japan, 1993</p> <p>6. <i>"Anisotropic Sm₂Fe₁₇-carbide-based permanent magnet powders prepared by special hydrogen treatment"</i>, Mitsubishi Materials Corporation, JP 5-36055, Japan, 1993</p> <p>7. <i>"Hydrogen Occluding Alloy and Electrode Made of the Alloy"</i>, Mitsubishi Materials Corporation, JP 08-040863, Japan, 1996</p> <p>8. <i>"Hydrogen Occluding Alloy and Electrode Made of the Alloy"</i>, Mitsubishi Materials Corporation, JP 08-044627, Japan, 1996</p> <p>9. <i>"Hydrogen Occluding Alloy and Electrode Made of the Alloy"</i>, Mitsubishi Materials Corporation, JP 08-050075, Japan, 1996</p> <p>10. <i>"Hydrogen Occluding Alloy and Electrode Made of the Alloy"</i>, Mitsubishi Materials Corporation, US 08/613,990/03/96, USA, 1996</p> <p>11. <i>"Hydrogen Occluding Alloy and Electrode Made of the Alloy"</i>, Mitsubishi Materials Corporation, EU 96905049.1-1270, EU, 1996</p> <p>12. <i>"New Porous and Magnetic, Inorganic-Based Composite Material Used as a Sorbent for Oil Spill Cleaning and Oil Recovery from Waters and the Environment"</i>, PCT/CY00/003, EU 00972578.1, EP 1303572</p> <p>13. <i>"Water Electrolysis System (HHO Generator) Producing a Clean Stoichiometric Gaseous Mixture of Hydrogen and Oxygen (HHO Gas), Potentially Suitable for Internal Combustion Engines (ICE) Cleaning/Increase of Efficiency, for Hydrogen Therapy and for Other Purposes"</i>, submitted (Patent#CY202200004)</p>	
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Other Achievements			
Ref. Number	Date	Title	Key Activities:
1	2010--2023	Committee	Participation in MS Thesis Committees

2	2016	Committee	Participation in the restructuring of Mechanical Engineering (Oil&Gas direction)
3	2015	Committee	Preparation of “Τεχνικός Οχημάτων»
4	2014	Committee	Preparation of “Τεχνικός Μηχανολογικών Εγκαταστάσεων»
5	2013	Committee	Preparation of Specialization in Oil&Gas Engineering within the Mechanical Engineering course of study (syllabus, etc)
6	2012	Committee	Preparation of Masters in Oil&Gas and Offshore Engineering (syllabus, etc)
7	2011	Committee	Preparation of Masters in Energy and the Built Environment (syllabus, etc)
8	2010	Society awareness	Touring of high school students to PV Parks in Cyprus