

# Europass Curriculum Vitae



## Personal information

**First name(s) / Surname(s)** Radu CHIRIAC  
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**Nationality** Romanian  
**Date of birth** February 18<sup>th</sup> 1958  
**Gender** Male

## Desired employment / Occupational field

I am mostly interested in the new forms of production for the automotive and engines industry related to the abatements of pollutant emissions and carbon foot-prints by using alternative fuels and intensive materials recycling. I would like to continue the activity in the field of engine research because I have some experience in projects management concerning the development of new engines at national level and I would like to improve my knowledge and my experience.

## Work experience

<b>Dates</b>	<b>2004 - present</b>
Occupation or position held	Professor
Main activities and responsibilities	Courses: lectures and laboratories - Combustion and pollutant emission control - Experimental techniques applied for internal combustion engine research - Heat Engines Research activities on: Alternative fuels for internal combustion engines, Combustion Investigation, Simulation of the internal combustion engines processes, Heat transfer and fluid dynamics
Name and address of employer	University "Politehnica", Faculty of Mechanical Engineering, Faculty of Engineering in foreign languages, Spl. Independentei 313, sect. 6, 060042, Bucharest
Type of business or sector	Education and research
<b>Dates</b>	<b>1998 - 2004</b>
Occupation or position held	Associate professor
Main activities and responsibilities	Courses: lectures and laboratories - Combustion theory - Internal combustion engines fundamentals - Moteurs a combustion interne - Experimental research of thermal equipment Research activities on: Alternative fuels for internal combustion engines, Combustion Investigation, Simulation of the internal combustion engines processes
Name and address of employer	University "Politehnica", Faculty of Mechanical Engineering, Faculty of Engineering in foreign languages, Spl. Independentei 313, sect. 6, 060042, Bucharest
Type of business or sector	Education and research

	<b>Dates</b>	<b>1992 - 1998</b>
Occupation or position held		Lecturer
Main activities and responsibilities		Courses: lectures, laboratories and tutorials - Internal combustion engines for road vehicles characteristics and processes - Internal combustion engines for road vehicles design and manufacturing - Statistical treatment of experimental data - Numerical methods Research activities on: Alternative fuels for internal combustion engines, Simulation of the internal combustion engines processes, Thermodynamics
Name and address of employer		University "Politehnica", Faculty of Mechanical Engineering, Faculty of Engineering in foreign languages, Faculty of transportation, Spl. Independentei 313, sect. 6, 060042, Bucharest
Type of business or sector		Education and research
	<b>Dates</b>	<b>1984 - 1992</b>
Occupation or position held		Assistant professor
Main activities and responsibilities		Courses: laboratories and tutorials - Internal combustion engines for road vehicles - Bases of Experimental Research for Thermal Equipment - Numerical methods Research activities on: Alternative fuels for internal combustion engines, Simulation of the internal combustion engines processes, Thermodynamics
Name and address of employer		University "Politehnica", Faculty of Mechanical Engineering, Faculty of transportation, Spl. Independentei 313, sect. 6, 060042, Bucharest
Type of business or sector		Education and research
	<b>Dates</b>	<b>1982 - 1984</b>
Occupation or position held		Engineer
Main activities and responsibilities		Boilers and steam turbines surveillance, control and operation
Name and address of employer		I.E. Ploiesti, Power - Plant Brazi II, Ploiesti
Type of business or sector		Energetic industry
<b>Education and training</b>		
	<b>Dates</b>	<b>2009 - 2010</b> (6 months, 3 for each year)
Title of qualification awarded		Associate member
Principal subjects/occupational skills covered		Education and research activities concerning performance and emissions of turbo machines and heat engines, Program Research in Paris
Name and type of organisation providing education and training		Laboratoire du génie des procédés pour l'environnement, l'énergie et la santé EA21, Conservatoire National de Arts et Metiers, Paris, France
	<b>Dates</b>	<b>2001, 2002, 2003, 2008</b> (2 months/year)
Title of qualification awarded		Qualified personnel
Principal subjects/occupational skills covered		Advanced simulation tools used for internal combustion engines research and development activities
Name and type of organisation providing education and training		AVL List GMBH, Graz, Austria
	<b>Dates</b>	<b>1994, 1997</b> (3 months/year)
Title of qualification awarded		Training on Tempus program

Principal subjects/occupational skills covered  
 Education and research concerning performance and emissions of internal combustion engines operating on oxygenated fuels

Name and type of organisation providing education and training  
 Politecnico di Torino, Turin, Italy

Dates  
**1995**

Title of qualification awarded  
 PhD. Diploma, Thermal equipment, Internal combustion engines

Principal subjects/occupational skills covered  
 Contributions to the Study on the Influence of Small Amounts of Hydrogen for the Combustion Process in the S. I. Engines

Name and type of organisation providing education and training  
 University "Politehnica of Bucharest"

Dates  
**1977 - 1982**

Title of qualification awarded  
 Master Diploma, Mechanical Engineer

Principal subjects/occupational skills covered  
 Mathematics, Numerical methods, Mechanics, Strength of materials, Fluid dynamics, Thermodynamics, Heat transfer, Internal combustion engines, Boilers, Steam and gas turbines

Name and type of organisation providing education and training  
 University "Politehnica of Bucharest, Faculty of Mechanical Engineering"

**Personal skills and competences**

Mother tongue(s) **Romanian**

Other language(s)

Self-assessment  
*European level (\*)*

**French**

**English**

**Italian**

**German**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User
C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User	C1	Proficient User
B2	Independent User	B2	Independent User	B1	Intermediate User	B1	Intermediate User	A2	Elementary User
A1	Beginner	A2	Elementary User	A1	Beginner	A1	Beginner	A1	Beginner

(\*) [Common European Framework of Reference for Languages](#)

Social skills and competences

- good ability of communication due to different conferences, trainings and projects performed in foreign countries (Italy, France, Austria, Nederland, USA)  
 - availability for accommodation in multicultural environments due to participation at various conferences  
 - team spirit developed by integration in different research groups

Organisational skills and competences

- leadership ability developed as a result of coordination for several research projects  
 - organisational spirit as participant to different scientific events  
 - managerial competences developed as a director of 15 research projects

Technical skills and competences

- management and control of engine testing equipments  
 - technical knowledge on data acquisition and communication systems of engine test bed using dedicated instrumentation for experimental research  
 - knowledge on environmental protection legislation

Computer skills and competences

Microsoft Office (Word, Excel, Power Point, )  
 Dedicated software for engines research and simulation: AVL Workspace

Artistic skills and competences

Other skills and competences

Creative spirit  
 Analytical capacity  
 Intuitive  
 Practical aptitude

Driving licence

License B

## Additional information

Membru Society of Automotive Engineers si Societatea Inginerilor de Automobile din Romania \ SEE ANNEXES

## Annexes

1. SHORT BIO
2. LIST OF SOME PUBLICATIONS
3. CONTRIBUTIONS AT CONFERENCES
4. PUBLISHED BOOKS
5. INVENTIONS AND INNOVATIONS
6. PROJECTS

### 1. SHORT BIO

I graduated University "Politehnica of Bucharest, Faculty of Mechanical Engineering in 1982 and obtained the PhD Diploma in 1995 with PhD. Diploma: Thermal equipment, Internal combustion engines, Contributions to the Study on the Influence of Small Amounts of Hydrogen for the Combustion Process in the S. I. Engines, at University "Politehnica of Bucharest.

My technical skills concern: Mathematics, Numerical methods, Mechanics, Strength of materials, Fluid dynamics, Thermodynamics, Heat transfer, Internal combustion engines, Boilers, Steam and gas turbines.

The research activities are related to Alternative fuels for internal combustion engines, Combustion Investigation, Simulation of the internal combustion engines processes, Heat transfer and fluid dynamics. Research contracts developed under the national programs were related to alternative gaseous fuels for engines, hydrogenated fuels as biodiesel obtained by the treatment of fatty acids and their glycerines with hydrogen rich gas, recovery of the wasted heat of engines.

### 2. LIST OF SOME PUBLICATIONS

1. R. Chiriac, C. Dica, D. Bombos, S. Neagoe, Preliminary study on the burning characteristics of HHO gas, REVISTA DE CHIMIE 57, nr.12, pp. 1273-1278, ISSN: 0034-7752, 2006 (Relative Impact Factor of Review = 0.3089).
2. R. Chiriac, N. Apostolescu, C. Dica, Constant volume combustion characteristics of HHO gas, Journal TERMOTEHNICA, nr. 1-2/2006, pp. 56-61, ISSN 1222-4057, 2006;
3. R. Chiriac, G. Descombes, Fuel consumption and pollutant emissions reduction by recovery of wasted energy, Journal Environmental Engineering and Management Journal, vol. 9, nr. 10, pp. 1335-1340, ISSN: 1582-9596, 2010, (Relative Impact Factor of Review = 0.35743);
4. M.S. Lounici, M. Tazerout, D. Niculescu, R. Chiriac, Etude expérimentale du fonctionnement au cliquetis du moteur diesel dual-fuel, Revista TERMOTEHNICA, nr. 2/2010, pp. 37-49, ISSN 1222-4057, 2010;
5. A. Birtas, I. Voicu, C. Petcu, R. Chiriac, N. Apostolescu The effect of HRG gas addition on diesel engine combustion characteristics and exhaust emissions, International Journal of Hydrogen Energy, vol. 36, issue 18, pp. 12007-12014, ISSN 0360-3199, 2011 (Relative Impact Factor of Review = 1.5933, FI= 3,313).
6. M. Deligant, G. Descombes, R. Chiriac, Analyse de cycles thermodynamiques complexes de poly-génération, Revista TERMOTEHNICA, nr.1/2012. pag. 24-29, ISSN-L 1222-4057, BDI:INDEX COPERNICUS INTERNATIONAL Online: ISSN 2247-1871, 2012 ;
7. I. Voicu, R. Chiriac, A Numerical Simulation of The Influence of Injection Characteristics on Performance and Emissions of a Tractor Diesel Engine, U.P.B. Sci. Bull. Series D, Vol. 74, Iss. 3, pag. 43-54, 2012.
8. Gh. Niculae, R. Chiriac, N. Apostolescu, *Effects of HRG gas addition on performance and emissions of a SI engine fuelled with liquefied petroleum gas*, REVISTA DE CHIMIE 64, nr.6, pag. 574-579, ISSN: 0034-7752, 2013 (cotata ISI).
9. Gh. Niculae, R. Chiriac, *On the possibility to recover the decrease of the spark ignition engines output at liquefied petroleum gas fuelling*, U.P.B. Sci. Bull. Series D, Vol. 75, Iss. 3, 2013, pag. 97-110, ISSN 1454-2358, 2013.
10. R. Chiriac, N. Apostolescu, *Emissions of a diesel engine using B20 and effects of hydrogen addition*, International Journal of Hydrogen Energy, (cotata ISI, FI= 3,313), Volume: 38, Issue: 30 Pages: 13453-13462 DOI: 10.1016/j.ijhydene.2013.07.095 Published: OCT 8 2013
11. I. Voicu, R. Chiriac, N. Apostolescu, *Effects Of Hydrogen Induction In A Diesel Engine Operating With Biodiesel B20 at Different Injection Timings*, Revista TERMOTEHNICA, nr.2/2013, pag. 43-54, ISSN-L 1222-4057, BDI:INDEX COPERNICUS INTERNATIONAL Online: ISSN 2247-1871, 2013
12. R. Chiriac, Al. Racovitza, P. Podevin, G. Descombes, *On the possibility to reduce CO2 emissions of heat engines fuelled partially with hydrogen produced by waste heat recovery*, International Journal of Hydrogen Energy, Volume 40, Issue 45, 7 December 2015, Pages 15856-15863, FI= 3,313

### 3. CONTRIBUTIONS AT CONFERENCES

1. R. Chiriac, B. Radu, N. Apostolescu, Defining Knock Characteristics and Autoignition Conditions of LPG with a Possible Correlation for the Control Strategy in a SI Engine, SAE 2006 World Congress Detroit, Michigan, USA, SAE Paper 2006-01-0227, 3-6 April, ISSN 0148-7191, 2006;
2. R. Chiriac, N. Apostolescu, C. Dica, Effects of Gasoline-Air Enrichment with HRG gas on Efficiency and Emissions of a SI Engine, SAE Power train & Fluid System Conference & Exhibition, Toronto, Canada, SAE Paper 2006-01-3431, 24-27 October, ISSN 0148-7191, 2006;
3. R. Chiriac, N. Apostolescu, C. Dica, Effects of Fuels Mixing - Hydrogen Rich Gas on Efficiency and Emissions of Internal Combustion Engines, FISITA-EAEC 11-th European Automotive Congress "Automobile for the Future", Budapest, Hungary, PT-P06, 30 May-1 June, 2007.
4. R. Chiriac, N. Apostolescu, C. Dica, Effects of Mixing Diesel Fuel-HHO Gas on Performance and Emissions of A diesel Engine, International Congress Automotive, Environment and Farm Machinery AMMA 2007505, 11-13 October Cluj-Napoca, ISSN 1221-5872, 2007;
5. T. Prisecaru, I.Pisa, L. Mihaescu, R.Chiriac, M. Prisecaru, E. Popa, T.Toma, L.Dragu, M.Ambrus, Combined CFD And Infrared Thermal Analysis Of A Wood Refuse And Di-Methyl-Ether Co-Fired Flame, International Conference EVORA-Lisbon, Portugal, ISBN 978-989-95091-1-5, 2007;
6. C. Dica, C. Petcu, G. Bleaja, R. Chiriac, N. Vasiliu, Hydrogen Rich Gas A Possible Challenge For The Fuels Future, Conference IPA - Bucuresti, October, ISBN 10-973-88046-7-1, 2007.
7. R. Chiriac, Carburants Du "Futur" : L'enrichissement En HRG, International Conference « Utilisation Rationnelle De L'energie Dans Les Moteurs A Combustion Interne Et Environnement » 9eme Cycles de Conferences CNAM/SIA, Paris, France, 1 April, 2008;
8. T. Prisecaru, C. Dica, C. Petcu, M. Prisecaru, R. Chiriac, Injection Technology of Hydrogen Gas to Reduce Sulfur Oxide and Fly Ash Emission, ASME International Mechanical Engineering Congress and Exposition, Boston, Massachusetts, USA, Paper IMECE2008-66936, 31 October- 6 November, ISBN 978-0-7918-4869-2, 2008;
9. A. Birtas, I. Voicu, R. Chiriac, N. Apostolescu, C. Petcu, Constant burning characteristics of HHO gas, Proceedings of the 9th International Autumn Seminar on Propellants Explosives and Pyrotechnics, Beijing China, Science Press USA Inc, Kunming PEOPLES R CHINA, 22-25 September, ISBN 978-7-03-025394-1, 2009;
10. T. Prisecaru, M. Teodorescu, M. Prisecaru, C. Petcu, G. Bleaja, E. Popa \*, C. Ciobanu, R. Chiriac, P. Dumitru, L. Mihaescu, Numerical model and infrared analysis of a hydrogen enriched gas flame, 50th Conference on Simulation and Modelling, DONG Energy, Skaerbaek Denmark, 7-8 October, ISBN 978-87-89502-88-5, 2009;
11. R. Chiriac, G. Descombes, Assessment on the possibility of energy recovery process from the engine exhaust gases using thermodynamic analysis, "5-eme Edition du Colloque Francophone – Cofret 2010 Sur L'energie – Environnement – Economie & Thermodynamique, Buletinul I. P. Iasi, tomul LVI(LX), Fasc. 3a, ISSN 1011-2855, 2010;
12. A. Birtas, I. Voicu, Gh. Niculae, A. Racovitza, R. Chiriac, N. Apostolescu, C. Petcu, Effects of LPG-air enrichment with HRG gas on performance and emissions of a SI engine, FISITA 2010 World Automotive Congress, "Automobiles and Sustainable Mobility", Budapest Hungary, F2010-A-064, 30 mai-4 June, ISBN 978-963-9058-28-6, 2010;
13. A. Birtas, I. Voicu, Gh. Niculae, R. Chiriac, N. Apostolescu, C. Petcu, Hydrogen assisted combustion in DI diesel engine, CONAT 2010 International Automotive Congress, Brasov, XI-th Edition, CONAT20102037, pp. 201-208, 27 - 29 October, ISSN 2069-0401, 2010;
14. A. Birtas, I. Voicu, C. Petcu, R. Chiriac, N. Apostolescu, C. Petcu, Effects of Air-Hydrogen Induction on Performance and Combustion of a Diesel Engine, 10th International Conference on Engines & Vehicles, September 2011, Naples, ITALY, Session: Hydrogen/Ethanol/Fuel Cells, SAE Paper 2011-24-0094, ISSN 0148-7191, 2011;
15. I. Voicu, A. Birtas, Gh. Niculae, A. Racovitza, R. Chiriac, Effects of Hydrogen Addition to Intake Air on Performance of a Tractor Diesel Engine Fueled with Biodiesel, 33th International Symposium of Section IV of CIGR Bucharest June 23-25, 2011;
16. M. Deligant, G. Descombes, R. Chiriac, *Analyse de cycles thermodynamiques complexes de poly-génération*, Colloque Francophone sur l'Energie et l'Environnement COFRET 2012, pag. 33-38, 11-13 Juin, Sozopol, Bulgarie, 2012 ;
17. R. Chiriac, A. Racovitza, P. Podevin, G. Descombes, *Hydrogen On-Board Production By Means Of Engines Waste Heat Recovery And Its Usage As A Supplementary Fuel*, Colloque Francophone sur l'Energie et l'Environnement COFRET 2014, pag. 580-594, 23 - 25 avril CNAM, Paris, France, 2014 ;
18. A. Racovitza, B. Radu, M. Aldhaidhawi, R. Chiriac, On the possibility to reduce, Diesel engines emissions by operating with Biodiesel B20 in PPC mode, Proceedings of European Automotive Congress EAEC-ESFA, 2015, pp 405-418, Springer, ISBN 978-3-319-27275-7 ;
19. B. Radu, A. Racovitza, R. Chiriac, Development of a Water Rankine System to improve Diesel Engine efficiency, Proceedings of European Automotive Congress EAEC-ESFA, 2015, pp 485-494, Springer, ISBN 978-3-319-27275-7;
20. A. D. Calin, N. Enescu, R. Chiriac, N. Orasanu The NHV behaviour of a powertrain fixed on a measurement bench, Proceedings of European Automotive Congress EAEC-ESFA, 2015, pp 541-552-418, Springer, ISBN 978-3-319-27275-7.

#### 4. PUBLISHED BOOKS

1. R. Chiriac, R. Radu, Experimental research of thermal equipments (in Romanian) – Îndrumar de laborator, Universitatea Politehnica București, 1997;
2. N. Apostolescu, R. Chiriac, Combustion process of internal combustion engines - fuel economy and pollutant emissions abatement, (in Romanian), Editura Tehnică, București, ISBN 973-31-1239-9, 1998;
3. R. Chiriac, Moteurs à combustion interne, Processus, Editura Bren, București, ISBN 973-648-208-1, 2003 ;
4. R. Chiriac, Dynamic and thermal computation for internal combustion engines (in Romanian)– Îndrumar de proiect, University Politehnica București, 2004;

5. R. Chiriac Pressure indicated diagram of internal combustion engine, (in Romanian), Editura AGIR, București, ISBN 973-8466-55-5, 2004;
6. R. Chiriac Internal combustion engines- Basic operation principles, Editura AGIR, București, ISBN 978-973-720-447-9, 2012.
7. R. Chiriac Procese ale motoarelor cu ardere internă actuale-Probleme generale, Ed. AGIR, București ISBN 978-973-720-447-9, 2015

## 5. INVENTIONS AND INNOVATIONS

- 1.R. Chiriac et al. US20090199465 Procedure of Obtaining Automotive Fuels and The Modified Fuels Obtained by Means of This Procedure, Brevet de invenție nr. RO122548-B1PCT/RO2007/000015 din 28.08.2009.
2. R. Chiriac et al. US20100132661 Method of Using Lean Fuel-Air Mixtures at all Operating Regimes of a Spark Ignition Engine Brevet de invenție nr. RO122556-B1PCT/RO2007/000013 din 28.08.2009
3. R. Chiriac, G. Descombes. P. Podevin, "Dispositif d'alimentation d'un moteur à combustion interne en gaz enrichi en dihydrogène et en dioxygène" Brevet de invenție INPI nr. 2 964 152 Paris, France, 24.08.12, Bulletin 12/34.
4. R. Chiriac, G. Descombes. P. Podevin Dispositif d'alimentation d'une machine thermique à combustion en gaz enrichi en dihydrogène et dioxygène au nom de Conservatoire National des Arts et Métiers (CNAM, Paris) et University Politehnica Bucharest (UPB) Brevet European EP 2 609 309 B1, Bulletin 2105/20

## 6. RESEARCH PROJECTS

1. Experimental researches on flammability characteristics of HHO gas Contract nr. 487/13.01.2006, UPB (CCT) and Rokura Aplicații Industriale Srl. București.
2. Study on the possibilities to adapt a tractor diesel engine UTB 50kW/2400rpm to fueling with new biodiesel fuels Contract nr. 813/28.11.2006 UPB (CCT) and Rokura Aplicații Industriale Srl. București.
3. Study on the behavior of an energy transfer system for recovered heat of a Dacia 1400 engine contract UPB (CCT) și SC PETROMSERVICE SA nr. 22/09.02.2007;
4. Technology and pilot system for obtaining reformulated diesel fuel by catalytic treatment of the primary gasoil with hydrogen rich gas Contract Program Inovare nr. 28/15.10.2007-2009
5. Biodiesel obtained by the fatty acids and their esters treatment with hydrogen rich gas Contract Program PARTENERIATE nr.71041/18.09.2007-2010