

# European curriculum vitae

## Personal information

Surname(s) / First name(s)

**ALLOUIS Christophe**

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Nationality(-ies)

French

Date of birth

03/03/1971

Gender

M

## Work experience

Dates

2001- on-going

Occupation or position held

**Researcher** at the Italian National Council of Research – CNR (I)

Main activities and responsibilities

Main research activities and competences on energetic systems and innovation, energy policy, Biofuels and renewable sources for energy production, power plant optimization, combustion, pollutant characterization

Principle Investigator for different national and regional research and innovation projects with industrial partners, for instance: Société Tecsa Bois on design and optimization of a 1 MWth burner fuelled with pulverized wood (2001-2002); CTM s.r.l. on "optimization of the combustion chamber of an open fire place to lower emissions" (2003-2005); on the "design and industrialization of a new generation open fire place with sustainable technology" (2004-2006); ITEA Spa on "chemico-physical analysis of particulates emitted by Isotherm reactor under oxycombustion conditions" (2006); Italian Ministry of Economic Development on "Use of biofuels in micro gas turbine for smartgrids" (2008-2012); Italian Ministry of Environment on "Use of Biokerosene for Aviation" (2016-2018).

Co-responsible for different European R&D projects, for instance: ACREVO, Advanced Combustion REsearch for Vegetable Oils (FP5-1996-1999); MUSCLES, Modelling of UnSteady Combustion in Low Emission Systems in aeronautic engines (FP6-2002-2005); AFTUR, Alternative Fuel for gas TURbine (FP6-2002-2006)

Participant in the CNR strategic programs regarding "Technology and combustion processes with low environmental impact"; "Characterization and analysis of the formation mechanisms of pollutants"; "Alternative fuels: valorisation of biomass and wastes"

Name and address of employer

Consiglio Nazionale delle Ricerche - CNR, P.le A. Moro, 7 - 00185 Rome, Italy

Type of business or sector

Research organization

Dates

2010

Occupation or position held

**Invited researcher** at the Utah University (USA)

Main activities and responsibilities

Development of optical technique based in IR imaging for Oxy-fuel combustion

Name and address of employer

University of Utah, Chemical Engineering - 50 South Central Campus Drive, Room 3290 - Salt Lake City Utah, 84112-9203, USA

Type of business or sector

University

Dates

2003

Occupation or position held

**Invited researcher** at the French National Centre for Scientific Research - CNRS (F)

Main activities and responsibilities

Characterization of a gas turbine combustor by optical techniques

Name and address of employer

LCSR-CNRS - 1C, avenue de la Recherche Scientifique - 45071 Orléans Cedex 2, France

Type of business or sector

Research organisation

Dates 2008-on-going  
Occupation or position held **Evaluator of EC and National RTDI projects**  
Main activities and responsibilities Participating on selection panels of several European Commission FPs calls for proposals (DG RTD) and other DGs' research programs projects evaluation (ENER, REGIO and ENTR); of the French Environment and Energy Management Agency (ADEME); of the Israel Science Foundation (ISF); of the Italian Ministry of Economic Development  
Name and address of employer European Commission; Research organisation  
Type of business or sector Public organisation

Dates 2003-on-going  
Occupation or position held **Advisor for regional RTDI-related issues**  
Main activities and responsibilities Providing expertise to regional bodies in designing and implementing research/innovation policies/strategies and monitoring projects implementation, for instance:  
2003: District (Provincia) of Alessandria, for energy innovation  
Since 2006: Regional Centre of Competences in Campania, for improving SME innovation strategy, product distribution and competitiveness  
Since 2007: participating in the monitoring of the implementation of RTDI projects assigned to the following Italian Regions: Sicily, Veneto, Lombardia (as registered regional auditor for RDTI projects of the Italian Ministry of Economic Development) and to the French "Région Centre", in collaboration with the French Environment and Energy Management Agency (ADEME)  
Name and address of employer District (Provincia) of Alessandria; Piemonte (Italy); Regione Campania Centre of Competence (Italy); various Regions (Italy and France)  
Type of business or sector Public organisation

Dates 2006-on-going  
Occupation or position held **Advisor for RTDI-related issues for Industry and SMEs**  
Main activities and responsibilities Providing expertise to Industry and SMEs in designing and implementing research/innovation policies/strategies, for instance:  
2006: C.T.M. srl, for the development and modification of new closed fire placed able to comply with the Swiss and German pollutant emission regulations  
2006: C.T.M. srl, for the development of innovative products to increase internationalization and competitiveness of the company in the EU market  
2007: Redoil Italy Spa, for the improvement of the process for energy recovery from industrial wastes to enhance the competitiveness of the company in the EU market  
2011: FLIR, for the development of innovative applications of InfraRed camera to combustion systems  
Name and address of employer C.T.M. srl, Benevento (Italy); Redoil Italy Spa, San Vitaliano (Italy); FLIR Systems company for R&D and innovation strategy, Milano (Italy)  
Type of business or sector Industry; SMEs

Dates 2001- on-going  
Occupation or position held **Teaching activities at University and for Industry** on innovation and energy related issues  
Main activities and responsibilities Responsible of the courses on advanced optical diagnostics for combustion systems and application of the Infra Red imaging to combustion systems for University students, post doc fellows, industry engineers  
Name and address of employer University of Naples (Italy); Alenia (Italian Aerospace Industry); Bertelli Spa (Italian burner producer Company); Ansaldo boiler (Italy)  
Type of business or sector University; Industry

## Education and training

Dates 1999

Title of qualification awarded **PhD thesis in chemical engineering**, Orléans' University (F)  
 Principal subjects/Occupational skills covered Characterization Of Combustion Processes Of Rapeseed Oil And Its Blends With Alcohol As Liquid Fuels In Stationary Burners  
 Name and type of organisation providing education and training Université d'Orléans - 6 Avenue du Parc Floral - 45100 Orléans, France  
 Level in national or international classification 5A/6

Dates 1994

Title of qualification awarded **Graduated in chemical engineering**, Ecole Supérieure de l'Energie et des Matériaux, Orléans (F)  
 Principal subjects/Occupational skills covered Majoring in heat and industrial energy engineering  
 Name and type of organisation providing education and training Ecole Supérieure de l'Energie et des Matériaux - 2 4 Rue de Vendôme -45062 Orléans, France  
 Level in national or international classification 5A

Dates 1991

Title of qualification awarded **Technology University Diploma (DUT)**, Ville d'Avray's Polytechnic (F)  
 Principal subjects/Occupational skills covered Majoring in heat and industrial energy  
 Name and type of organisation providing education and training Ville d'Avray's Polytechnic – Paris, France  
 Level in national or international classification 5B

**Personal skills and competences**

Mother tongue(s)

Other language(s)

Self-assessment

European level <sup>(1)</sup>

**ITALIAN**

**ENGLISH**

**GERMAN**

**FRENCH**

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2
C2	C2	C2	C2	C2
A2	A2	A2	A2	A2

<sup>(1)</sup> Common European Framework of Reference (CEF) level

Social skills and competences

**Solid communication skills both orally and in writing** Teaching activities for Universities and private bodies. Regular speaker in conferences and symposium. Author of several publications and articles and regular drafting in FR, EN, IT. Invited by Italian television broadcaster RAI as the CNR representative for Biomass and waste valorisation

**Excellent adaptation skills** Used to moving country and working context inside and outside of Europe

Organisational skills and competences

**Mature organisational and management capacities and ability to motivate teams and work in different environments** Responsible for several research projects including multinational teams: ensuring planning, supervision of staff performances and budget, cost statements and reporting. Managed research networks for instance the Italian participation to an international research network on combustion. Took part in the organisation of several international meetings (Mediterranean Combustion Symposium; National meetings related to EU RDTI projects, etc.)

Technical skills and competences

**High level of professional experience on:**  
 - **Practical combustion systems** pollutant characterization by means of advanced laser-based

techniques, flow characterisation, advanced thermography applied for burner design  
- **Development of advanced diagnostics for combustion systems** based on laser light -material interferences. Good knowledge on physics (i.e. quantum mechanics)

**Consolidated knowledge of the EU, National and regional RDTI policies and procedures**  
Participated at several EC FPs as project partner. Assisted several project coordinators in preparing project proposals. **Evaluator** in several panels of EC FPs and other calls for proposals (**DG RDT, ENER, REGIO, ENV and ENTR**). Participated in the organization of the Regional Centre of Competences in Campania (Italy) in the framework the regional innovation policy. Participated in the monitoring of RDTI projects in the Italian regions of Sicily, Veneto, Lombardia and in the French "Région Centre"

Computer skills and competences

**Excellent computer knowledge** of Windows operative Systems (from Win95 to Windows 8), Microsoft Business OFFICE 2010 pack, Photoshop, Grapher, Labview, Matlab, cad: Solidworks, AutoDesk packages

Driving licence(s)

French Driving licence type B, C, D

**Additional information**

**Registered regional auditor of the Italian Ministry of Economic Development for RDTI projects (Albo degli esperti), and of Italian Ministry of Research and Education (REPRISE) since 2007**

**Author and co-author** of 44 scientific papers (source: Scopus)

**H index:** 16 (source: Scopus)

**Citations:** 565 (source : Scopus)

**Qualified as Associate professor (II fascia) in 2013 sector ING 09**

**Speaker at more than 80 International and National meetings**

List of publications on ISI journal:

1. M. Lappa, A. Esposito, Aponte, F., **C. Allouis**, “High velocity infrared thermography and numerical trajectories of solid particles in compressible gas flow”, *Powder Technology*, 343, 671-682, 2019.
2. **Allouis, C.**, A. Amoresano, Capasso R., Langella G. Quaremba, V. Niola, “The impact of biofuel properties on emissions and performances of a micro gas turbine using combustion vibrations detection”, *Fuel Processing Technology*, 179, 10-
3. A. Amoresano, **C. Allouis**, M. Di Santo, P. Iodice, G. Quaremba, V. Niola, “Experimental characterization of a pressure
4. D. Tarlet, **C.Allouis**, J. Bellettre, “The balance between surface and kinetic energies within an optimal micro-explosion”, *International Journal of Thermal Sciences*, 107, 179-183, 2016. DOI: 10.1016/j.ijthermalsci.2016.04.008
5. **C. Allouis**, A. Amoresano, G. Langella, V. Niola, G. Quaremba, “Characterization of gas turbine burner instabilities by
6. **C. Allouis**, F. Chiariello, “Effect on O2 enrichment and CO2 dilution on rapeseed oil combustion in a stationary burner”,
7. **C. Allouis**, S. Cimino, M. Gallo, R. Nigro, “A glance at the world: Combustion of poultry derived wastes for smart energy recovery in Italy”, *Waste Management*, 35, 1-4, 2015. DOI: 10.1016/S0956-053X(14)00553-4.
8. A. Cecere, R. Savino, **C. Allouis**, F. Monteverde, “Heat transfer in ultra-high temperature advanced ceramics under high enthalpy arc-jet conditions”, *International Journal of Heat and Mass Transfer*, 91, 747-755, 2015. DOI:10.1016/j.ijheatmasstransfer.2015.08.029
9. D. Tarlet, E. Mura, C. Josset, J. Bellettre, **C.Allouis**, P. Massoli “ Distribution of thermal energy of child-droplets issued from an optimal micro-explosion”, *International Journal of Heat and Mass Transfer*, 77, 1043-1054, 2014. DOI: 10.1016/j.ijheatmasstransfer.2014.06.054.
10. S. Cimino, **C. Allouis**, G. Mancino, R. Nigro “Hybrid catalytic combustion of methane/hydrogen mixtures”, *Combustion Science and Technology*, 186 (4-5), 552-562, 2014. DOI: 10.1080/00102202.2014.883250
11. **C. Allouis**, A. Esposito, P. Salatino, R. Savino, O. Senneca, “Set up of an experimental protocol for the investigation of graphite combustion in supersonic flow”, *Experimental Thermal and Fluid Science*, 56, 9-15, 2014. DOI: 10.1016/j.expthermflusci.2013.11.014.
12. F. Chiariello, **C. Allouis**, F. Reale, P. Massoli, “Gaseous and particulate emissions of a micro gas turbine fuelled by straight vegetable oil-kerosene blends”, *Experimental Thermal and Fluid Science*, 56, 16-22, 2014. DOI: 10.1016/j.expthermflusci.2013.11.013
13. **C. Allouis**, A. Amoresano, D. Giordano, M. Russo, F. Timpone, “Measurement of the thermal diffusivity of a tire compound by mean of infrared optical technique”, *International Review of Mechanical Engineering*, 6 (6), 2012. ISSN: 19708734.
14. **C. Allouis**, R. Pagliara, A. Saponaro, “Fast infrared imaging for combustion stability analysis of industrial burners”, *Experimental Thermal and Fluid Science*, 43 (2), 2-8, 2012. DOI: 10.1016/j.expthermflusci.2012.04.014
15. S. Cimino, **C. Allouis**, R. Pagliara, G. Russo, “Effect of catalyst formulation (Rh, Rh-Pt) on the performance of a natural gas hybrid catalytic burner”, *Catalysis Today*, 171 (1) , 72-78, 2011. DOI: 10.1016/j.cattod.2011.02.018
16. M. Simeone, L. Salemme, **C. Allouis**, “Reactor temperature profile during autothermal methane reforming on Rh/Al2O3 catalyst by IR imaging”, *International Journal of Hydrogen Energy*, 33(18), 4798-4808, 2008. DOI: 10.1016/j.ijhydene.2008.05.089
17. **C. Allouis**, F. Beretta, P. Minutolo, R. Pagliara, M. Sirignano, L.A. Sgro, A. D’Anna, “Measurements of ultrafine particles from a gas-turbine burning biofuels”, *Experimental Thermal and Fluid Science*, 34 (3), 258-261, 2010. DOI: 10.1016/j.expthermflusci.2009.10.034
18. O. Senneca, **C. Allouis**, R. Chirone, S. Russo, “Set up of an experimental apparatus for the study of fragmentation of solid fuels upon severe heating”, *Experimental Thermal and Fluid Science*, 34 (3) , 366-372, 2010. DOI: 10.1016/j.expthermflusci.2009.10.015
19. M. Simeone, L. Menna, L. Salemme, **C. Allouis**, “Temperature evolution on Rh/Al2O3 catalyst during partial oxidation of methane in a reverse flow reactor”, *Experimental Thermal and Fluid Science*, 34 (3), 381-386, 2010. DOI: 10.1016/j.expthermflusci.2009.10.014  
5 years Impact Factor: 3,9
20. D. Menghini, F.S. Marra, **C. Allouis**, F. Beretta, “Effect of excess air on the optimization of heating appliances for biomass combustion”, *Experimental Thermal and Fluid Science*, 32(7), 1371-1380, 2008. DOI: 10.1016/j.expthermflusci.2007.11.018
21. M. Simeone, L. Salemme, **C. Allouis**, G. Volpicelli, “Temperature profile in a reverse flow reactor for catalytic partial oxidation of methane by fast IR imaging”, *AIChE Journal*, 54(10), 2689-2698 2008. DOI: 10.1002/aic.11565
22. **C. Allouis**; F. Beretta; A. Amoresano; “Experimental Study of Lean Premixed Prevaporized Combustion Fluctuations in a Gas Turbine Burner”, *Combustion Science and Technology*, 180(5), 900-909, 2008. DOI: 10.1080/00102200801894323
23. A. D’Anna; M. Commodo; S. Violi; **C. Allouis**; J. Kent, “Nano organic carbon and soot in turbulent non-premixed ethylene flames”, *Proceedings of the Combustion Institute*, 31/1, pp 621-629, 2007. DOI: 10.1016/j.proci.2006.07.062
24. M. Simeone, L. Salemme, D. Scognamiglio, **C. Allouis**, G. Volpicelli, “Effect of water addition and stoichiometry variations on temperature profiles in an autothermal methane reforming reactor with Ni catalyst”, *International Journal of Hydrogen Energy*, 33 (4) 1252 – 1261, 2008. DOI: 10.1016/j.ijhydene.2007.12.034
25. T. Marchione; **C. Allouis**; A. Amoresano; F. Beretta, “Experimental Investigation of a Pressure Swirl Atomizer Spray”, *Journal of Propulsion and Power*, 23:5, 1096-1101, 2007. DOI: 10.2514/1.28513.

26. M. Commodo, S. Violi, A. D'Anna, A. D'Alessio, **C. Allouis**, F. Beretta and P. Minutolo. "soot and nanoparticle formation in laminar and turbulent flames", *Combustion Science and Technology*, 179, 387-400, 2007. DOI: 10.1080/00102200600835618
27. D. Menghini, T. Marchione, G. Martino, F. S. Marra, **C. Allouis**, F. Beretta. "numerical and experimental investigations to lower environmental impact of an open fireplace", *Experimental Thermal and Fluid Science*, 31, 477-482, 2007. DOI: 10.1016/j.expthermflusci.2006.05.012.
28. **C. Allouis**, A. L'Insalata, L. Fortunato, A.Saponaro, F. Beretta. "study of water-oil emulsion combustion in large pilot power plants for fine particle matter emission reduction", *Experimental Thermal and Fluid Science*, 31, 420-426, 2007. DOI: 10.1016/j.expthermflusci.2006.04.011
29. A. D'Anna, A. Rolando, **C. Allouis**, P. Minutolo, A. D'Alessio. "Nano-organic carbon and soot particle measurements in a laminar ethylene diffusion flame", *Proceedings of the Combustion Institute*, 30/1, pp. 1449-1456, 2005. DOI: 10.1016/j.proci.2004.08.276.
30. A. Rolando, **C. Allouis**, F. Beretta, A. D'Alessio, A. D'Anna, P. Minutolo, "Measurement of particulate volume fraction in a co-flow diffusion flame using transient thermocouple technique", *Combustion Science and Technology*, 176, pp. 945-958, 2004. ISSN: 00102202.
31. **C. Allouis**, F. Beretta, A. D'Alessio, "Structure of Inorganic and Carbonaceous Particles Emitted from Heavy Oil Combustion", *Chemosphere*, 51/10, 1091 – 1096, 2003. DOI: 10.1016/S0045-6535(02)00714-2.
32. **C. Allouis**, F. Beretta, A., D'Alessio, "Sizing Soot and Micronic Carbonaceous Particle in Spray Flames Based on Time Resolved LIF", *Experimental Thermal and Fluid Science*, 27/4, 455-463, 2003. DOI: 10.1016/S0894-1777(02)00248-0.
33. **C. Allouis**, F. Rosano, A. D'Alessio, F. Beretta, "A possible radiative model for micronic carbonaceous particle sizing based on time resolved laser induced incandescence", *Measurement Science and Technology*, 13, 401-410, 2002. DOI: 10.1088/0957-0233/13/3/323.
34. **C. Allouis**, B. Apicella, R. Barbella, A. Tregrossi, F. Beretta, A. Ciajolo, "Soot and PAH formation in the rapeseed oil spray combustion", *Clean Air*, 3, 53-68, 2002. DOI: 10.1080/15614410211843. ISSN 1561-4417. : Editor-in-Chief: John Lloyd, Co-Editor: Abraham E. Engeda , Fred C. Lockwood , Mário Costa.
35. S.S. Merola, G. Gambi, **C. Allouis**, F. Beretta, A. Borghese, A D'Alessio, "Differential analysis of exhausts emitted by engines and stationary burners, by means of u.v. – visible extinction and fluorescence spectroscopy", *Chemosphere*, 42, pp. 827-834, 2001. DOI: 10.1016/S0045-6535(00)00257-5.
36. A. Ciajolo, B. Apicella, R. Barbella, A. Tregrossi, F. Beretta, **C. Allouis**, "Depletion of fuel aromatic components and formation of aromatic species in spray flames as characterized by fluorescence spectroscopy", *Energy & Fuels*, 15 (4): 987-995, 2001. DOI: 10.1021/ef0100451.
37. **C. Allouis**, A. D'Alessio, C. Noviello, F. Beretta, "Time resolved induced incandescence for soot and cenospheres measurements in oil flames", *Combustion Science and Technology*, 153, pp. 51-63, 2000. ISSN: 00102202.
38. **C. Allouis**, A. D'Alessio, F. Beretta, A. Borghese, "Ultraviolet absorption and fluorescence measurements in turbulent spray flames", *Proceedings of the Combustion Institute*, 28, pp. 311-317, 2000. ISSN: 15407489.
39. M. Romano, **C. Allouis**, F. Beretta, A. D'Alessio, "Atomization characteristics of bitumen crude-water emulsion", *Atomization and Spray*, 8, n° 1, p. 109-121, 1998. ISSN: 10445110  
5 years Impact Factor: 1,18
40. **C. Allouis**, M. Romano, F. Beretta, L. Viegas, A. D'Alessio, "Particulate formation from the spray combustion of heavy oil and biofuel", *Combustion Science and Technology*, 134, 1-6, pp. 457-476, 1998. ISSN: 00102202.

#### Chapter in book

**C. Allouis**, R. Pagliara, capitolo: "Infrared Imaging to Combustion Systems", pp 165-180, nell'Ebook intitolato: *Infrared Thermography Recent Advances and Future Trends*, ed. Carosena Meola, Bentham, 2012. **ISBN**: 978-1-60805-521-0, **eISBN**: 978-1-60805-143-4, 2012, DOI: 10.2174/97816080514341120101.