



Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)

Arca Simone

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arca@rdpower.it; simone.arca@pec.chimici.it

Nationality(-ies)

Italian

Date of birth

03/06/1975

Gender

M

**Desired employment /
Occupational field**

Entrepreneur / Adviser / Researcher

Qualifies 2012

Qualified Adviser at Umbria Innovazione S.p.A. in the fields:
2.1 – DESIGN, ANALYSIS AND EXPERIMENTAL AREA
2.2 – LOGISTIC AND PRODUCTION AREA

Qualifies 2012

Admitted to Italian Chemistry Professional Register, n. 3372

Expertise

Supercritical Fluids:

Training Stage at HIGH PRESSURE PROCESSES GROUP,
Chemical Engineering and Environmental Technology Dept. -
University of Valladolid – Spain.

Supercritical Water Oxidation (SCWO) processes, Supercritical
Water Gasification (SCWG) processes, Hydrothermal Flame
(SCWO-HF) processes, Subcritical and Supercritical Fluids
Extraction such as CO₂, Water and other solvents.
Supercritical Fluids nanomaterial production with processes
RESS (Rapid Expansion of Supercritical Solutions), PGSS
(Particles from Gas Saturated Solutions), GAS (Gas
Antisolvent Crystallisation), SAS (Supercritical Anti Solvent).
Pilots and Prototypes developments for Supercritical Fluids

process and measurements under supercritical fluid conditions.

Nanotechnologies

Five years of research at CEMIN Excellence Centre on Innovative Nanostructured Materials. Expertise in Self Assembling Nanostructured Materials, micelles e liposomes, Host Guest systems, Supramolecular Chemistry, Chelants, ione-exchange/ione-capture nanostructured systems (Zeolites). In depth in particular nanomaterials aspects such as Nanotoxycology, nanoparticles effects on Biologic and Microbiologic systems. Nanotecnologies for Gases and Biogas, purification, Nanotecnologies for wastewaters treatment.

Waste Management

Advanced processes application, based on Green Chemistry and Clean Technologies, for recycling, reclaiming, energy recovery of wastes, wastewaters, low grade materials, wastewaters decontamination as in EP2287118.

Supercritical Fluids refining, purifications, extraction, decontamination. Processes for treatments of bio-recalcitrant wastewaters and special wastes.

Renewable and Alternatives Energy Souces:

Advanced Processes for Biomasses energy recovery, Biomethane, Biogas, Gasyfication. Energy, Economy and Environmental sustainability of process or products.

Oil & Gas

Advanced and specialized knowledge on surfactant effect on Gas Hydrates promotion and inhibition. CMC and Kraft Point measurements under High Pressure and Low Temperature conditions, under various gases atmospheres, and in particular under Gas Hydrates forming condition as in WO2007122647.

Gas Hydrates calorimetry characterization, well and pipeline gas hydrates formation predicting models. QSAR characterization and modeling of inhibitors effects on Gas Hydrates formation. Advanced process for Binary Gas Hydrates formation for Hydrogen Storage, as in EP07010346.

Advanced technologies based on gas hydrates for Gaseous Mixture purification. Modeling and characterization of the surfactant effect on Enhanced Gas Recovery, and Flow Assurance, with particular attention on surfactant foaming potential. Rheology measurements under well salinity, pressure, temperature and water cut conditions.

Work experience

2011	Enterprise Start-up: “RDPower – Scientific and Technology Consulting”
Occupation or position held	Administrator
Main activities and responsibilities	Administrator and Researcher
Name and address of employer	RDPower s.r.l, Str. delle Campore 11/13 – 05100 Terni (TR) Italy
Type of business or sector	Services providing Enterprise: Industrial Research, Technology Development, Scientific and Technology Initiative funded by the Local Authority “Regione Umbria” with POR Umbria EFS 2007-2013, Obj.2, Axis V, Specific Object “M”- Mobility - Project Code AU11025M007
2011 - 2012	Research Grant
Occupation or position held	Researcher
Main activities and responsibilities	Research Grant funded by the Local Authority “Regione Umbria” for the Research Project: <i>Investigation and development of a novel process for Biogas Energy and Economic Upgrading by mean of Biomethane production for Industrial, Transport and Domestic purposes, based on Biogas Hydrates formation, an aqueous self-assembling nanostructures. Assessing of the Codes, Application and Energy Balance aspects</i>
Name and address of employer	Project realized within the structure SERECO-BIOTEST s.n.c. of Perugia
Type of business or sector	Process Development
2010	Business Venture: “RDPower – Scientific and Technology Consulting”
Occupation or position held	Training Stage
Main activities and responsibilities	Analysis of the Technical, Energy and Economic aspects of novel processes for special wastes destruction, and renewable energy production, based on Supercritical Fluids, characterized by highest efficiency, safety and eco-friendly. Assessment of the possibility to apply such processes in the Italian market of the special wastewater treatment and renewable energy production.
Name and address of employer	Training Stage at HIGH PRESSURE PROCESSES GROUP, Chemical Engineering and Environmental Technology Dept. -

	University of Valladolid - Spain Initiative funded by the Local Authority "Regione Umbria" with POR Umbria EFS 2007-2013, Obj.2, Axis V, Specific Object "M"- Mobility - Project Code AU08025M002
Type of business or sector	Process Development / Process Analysis
2009	Professional Collaboration
Occupation or position held	Researcher
Main activities and responsibilities	Developing, Designing and Realization of an Novel Experimental Apparatus to carry out laboratory experiments under sub- and super-critical condition of various fluids including especially water. Research activity in Supercritical Water Reactivity
Name and address of employer	A Research Collaboration with SERECO-BIOTEST s.n.c. of Perugia and CHI.FI.E.M.A. Laboratory of the Chemistry Dept. - University of Perugia
Type of business or sector	Process Development
2009	Professional Collaboration
Occupation or position held	Researcher
Main activities and responsibilities	Developing of Novel Processes for Ammonium Remediation in Wastewaters, with recycling of fertilizers and energy, Patent EP2287118
Name and address of employer	A Research Collaboration with SERECO-BIOTEST s.n.c. of Perugia, CHI.FI.E.M.A. Laboratory of the Chemistry Dept. - University of Perugia and ACTA S.p.A.
Type of business or sector	Process Development
2009	Professional Collaboration
Occupation or position held	Researcher
Main activities and responsibilities	Developing, Designing and Realization of an Novel Experimental Apparatus to carry out laboratory Substrates Characterization for BioGas and BioHydrogen production
Name and address of employer	A Research Collaboration with SERECO-BIOTEST s.n.c. of Perugia and CHI.FI.E.M.A. Laboratory of the Chemistry Dept. University of Perugia

Type of business or sector	Bio-Process Development
2009	Research Grant
Occupation or position held	Researcher
Main activities and responsibilities	Research Grant funded by the Local Authority "Regione Umbria" for the Research Project: <i>Development of a Novel Process, and Design and Realization of a Laboratory Scale Prototype, for the BioGas Storage under Clathrate Hydrate form, with Safety and Energy advantages</i>
Name and address of employer	Project realized within the structure SERECO-BIOTEST s.n.c. of Perugia
Type of business or sector	Process Development
2008 - 2009	Post Doc Fellowship
Occupation or position held	Researcher
Main activities and responsibilities	Post Doc Fellowship funded by the Chemistry Dept. - University of Perugia for the Research Project: <i>Study of the New - Synthesized Amphiphilic Molecules Properties and their Nanostructures in Watery Media</i>
Name and address of employer	Chemistry Dept. - University of Perugia
Type of business or sector	Basic Research
01/09/2004-31/12/2004	Fixed-Term Contract
Occupation or position held	Researcher
Main activities and responsibilities	Synthesis and Characterization of Clathrate Hydrates
Name and address of employer	Centre of Excellence on Innovative Nanostructured Materials (CEMIN), Chemistry Dept. - University of Perugia
Type of business or sector	Applied Research
1997-1999	Fixed-Term Contract
Occupation or position held	Sales Agent
Main activities and responsibilities	Voice and Internet Contracts sale for Business Customers

Name and address of employer	Former Telecommunications Company Infostrada S.p.A.
Type of business or sector	Telecommunications
Acknowledgments	
2003	Military Service
Title of qualification awarded	Exonerated from the Military Service because acknowledged by the Italian Army as a "Citizen involved with particular merits in a scientific career" under D.L. n. 504 30/12/1997
Education and training	
22/02/2008	Ph.D. Degree in Chemistry
Title of qualification awarded	Ph.D.
Principal subjects/Occupational skills covered	Obtained Doctorate Grant for the Research Thesis Topic: <i>Novel Method for Clathrate Hydrate Conditioning</i> . During the three years of doctorate studies the measurement capability a laboratory pressure apparatus has been improved in order to investigate Hydrogen Clathrate Hydrates. Classical "Drug Design" computational tools has been applied to the prediction of Hydrogen Clathrate Hydrates behaviour, obtaining a predictive model for the effect of conditioners on Type II Clathrate Hydrates. The results of this research activity led to the filing of the EP07010346 Patent
Name and type of organisation providing education and training	Centre of Excellence on Innovative Nanostructured Materials (CEMIN), Chemistry Dept. - University of Perugia
Level in national or international classification	Ph.D.
09/12/2005	State Qualifying Examination
Title of qualification awarded	Licence for Chemistry Professional Practice
Principal subjects/Occupational skills covered	Chemistry Department - University of Perugia

16/07/2004
Chemistry Degree
 Title of qualification awarded Italian title of Chemistry Doctor
 Principal subjects/Occupational skills covered Degree Thesis Topic: *Study on the Clathrate Hydrate Conditioning: The role of the Supramolecular Nanostructures.*
 During the Thesis Research activity a novel pressure apparatus for studying Clathrate Hydrates has been designed and realized characterized by the unique to be capable to carry out Conductivity Measurements under high pressure and Clathrate Hydrate forming conditions. The results of such research activity ruled out the "micellar model" proposed by the authors in Chemical Engineering Science 55 (2000) 4175-4187 and claimed in US6389820 patent.
 The apparatus has been filed in **WO/2007/122647** Patent
 Name and type of organisation providing education and training Chemistry Department - University of Perugia
 Level in national or international classification Chemistry Degree

1997
Private Training Course on Marketing and Communications Techniques
 Title of qualification awarded Sales Agent

07/1994
High School Diploma in Chemistry
 Title of qualification awarded Italian title of "Perito Chimico"
 Name and type of organisation providing education and training ITIS "Lorenzo Allievi" Terni

Personal skills and competences

Mother tongue(s) **Italian**

Other language(s) **English, Spanish**

Self-assessment
 European level (*)

English
Spanish

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
Good	Good	Good	Good	Good
Good	Good	Good	Good	Good

Social skills and competences	Member of the Italian Scouting Association AGESCI for 12 years following its entire educational training
Organisational skills and competences	Educational Leader with the Italian Scouting Association AGESCI for 3 years
Technical skills and competences	<p>Further than the consolidated knowledge in chemistry also shows good skills in:</p> <p>Electronic: PLC, PIC, Sensing Probes, Thermoelectric Devices, Process Control</p> <p>Mechanics: Pressure Vessel, Pressure Piping, Fittings and Valves for Pressure Service</p> <p>Energy: Energy Upgrading Systems, Renewable Energy, Energy Saving.</p> <p>General Engineering Skills for partial studies at the Engineering University</p> <p>Good knowledge of the PED Directive 97/23/EC.</p> <p>Good knowledge of the ASME BPVC</p>
Computer skills and competences	<p>Excellent knowledge of the Microsoft SO and Office environments.</p> <p>Excellent knowledge on Computer Hardware .</p> <p>Excellent knowledge on the World Wide Web environment</p> <p>Good knowledge of the Linux SO environment</p> <p>Good knowledge of the Software Autocad, Hyperchem, Origin, Chem Sketch.</p> <p>Base knowledge on Software Development and Numerical Analysis</p>
Sports	At 16 years old won the rifle-range regional championship, junior category.
Hobbies	Horse-riding, Orienteering, Study of the Scientific Development of Ancient Civilizations
Driving licence(s)	Type B, EU Driving Licence
Additional information	

Thesis	<p>NOVEL METHODS FOR CLATHRATE HYDRATE CONDITIONING, Arca S, PhD Thesis, 2008, CEMIN-University of Perugia</p> <p>STUDY ON CLATHRATE HYDRATE CONDITIONING: THE ROLE OF SUPRAMOLECULAR NANOSTRUCTURES Arca S., 2004, Chemistry Degree Thesis, Chemistry Dept. - University of Perugia</p>
Patents	<p>ARCA, SIMONE; POLETTI, ROBERTO; POLETTI, LUCA; BERT, PAOLO (2009) "METHOD FOR COST REDUCTION OF AMMONIA/AMMONIUM REMOVAL IN WASTEWATER BY RECOVERING AMMONIA ENERGY CONTENT AND RECYCLING PRECIOUS COMPOUNDS" EP2287118 SERECO-BIOTEST s.n.c. / ACTA S.p.A.,</p> <p>S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2007). PROCESS FOR THE PRODUCTION OF BINARY CLATHRATE HYDRATES OF HYDROGEN AND OTHER COMPOUNDS. EP07010346. CEMIN.</p> <p>S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2006). APPARATUS FOR PREPARING AND STUDYING CLATHRATE HYDRATES. WO/2007/122647. CEMIN.</p>
Scientific Papers	<p>P. DI PROFIO, S. ARCA, F. ROSSI, M. FILIPPONI. (2009). Comparison of hydrogen hydrates with existing hydrogen storage technologies: Energetic and economic evaluations. INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. vol. 34, pp. 9173-9180 ISSN: 0360-3199</p> <p>P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2007). Novel Nanostructured Media for Gas Storage and Transport: Clathrate Hydrates of Methane and Hydrogen. JOURNAL OF FUEL CELL SCIENCE AND TECHNOLOGY. vol. 4, pp. 49-55 ISSN: 1550-624X.</p> <p>P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2005). Promoting effects on clathrate hydrate formation: are micelles really involved?. CHEMICAL ENGINEERING SCIENCE. vol. 60, pp. 4141-4145 ISSN: 0009-2509.</p>
Communications and Lectures	<p>P CABEZA, S. ARCA, C JIMÉNEZ, M. D. BERMEJO, M. J. COCERO, (2011). Experimental Study of the Destruction Wastewaters with High Ammonia Concentrations by Supercritical Water Oxidation in a Vessel Reactor as Preliminary Step for the Treatment of Waste Water</p>

Treatment Plant Sludge. WATER & INDUSTRY Conference IWA, Valladolid, 1 – 4 May 2011 Spain

S. ARCA, L. POLETTI, R. POLETTI, E. D'ALESSANDRO, A. POLETTI, (2011). **Upgrading of Biogas Technology through the application of Gas Hydrates.** 7th International Conference On Gas Hydrates ICGH7, Edinburgh, 17 – 21 July 2011 Scotland (abstract accepted)

S. ARCA, (2009). **Energy upgrading e avanzamenti tecnologici negli impianti anaerobici.** Upgrading e gestione degli impianti di trattamento delle acque di scarico, Perugia, 22 – 23 October 2009 Villa Umbra, Pila

S. ARCA, L. POLETTI, E. D'ALESSANDRO, A. POLETTI (2009). **Novel prototype for studying supercritical water reactions.** Life Kolisoon International Workshop Terni, Italy 2nd -3rd JULY 2009

S. ARCA, R. POLETTI, L. POLETTI, P. BERT. (2009). **Energy approach to the ammonium remediation in high strength wastewaters.** Life Kolisoon International Workshop Terni, Italy 2nd -3rd JULY 2009,

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2008). **Energetic and economic evaluations on hydrogen storage technologies.** Proceedings of the 6th International Conference on Gas Hydrates (ICGH 2008), Vancouver, British Columbia, CANADA, July 6-10, 2008

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2008). **Measurements of relevant parameters in the formation of clathrate hydrates by a novel experimental apparatus.** Proceedings of the 6th International Conference on Gas Hydrates (ICGH 2008), Vancouver, British Columbia, CANADA, July 6-10, 2008

P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2008). **Novel nanotechnology for efficient production of binary clathrate hydrates of hydrogen and other compounds.** Proceedings of the 6th International Conference on Gas Hydrates (ICGH 2008), Vancouver, British Columbia, CANADA, July 6-10, 2008

DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2007). **I CLATRATI IDRATI DI METANO, IDROGENO, ANIDRIDE CARBONICA: UNA POSSIBILE RIVOLUZIONE TECNOLOGICA.** Energethica, Fiera di Genova. 24-26/05/2007.

P. DI PROFIO, R. GERMANI, S. ARCA, G. SAVELLI. (2007). **ROLE OF SURFACTANTS ON THE PROMOTION OF METHANE HYDRATE FORMATION.** 9th Conference on

Colloid Chemistry. 3-5/10/2007.

P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2007). **CLATHRATE HYDRATES OF HYDROGEN: A STUDY ON THE STRUCTURAL REQUIREMENTS OF CO-FORMER GUESTS.** VII Congresso Nazionale di Chimica Supramolecolare. 19-22/09/2007.

P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2007). **CLATHRATE HYDRATES OF METHANE AND HYDROGEN: A NANOTECH APPROACH.** GEOITALIA 2007, Sesto forum italiano di Scienze della Terra. 12-14/09/2007.

S. ARCA, F. COTANA, F.ROSSI, P. DI PROFIO, R. GERMANI, G. SAVELLI, M. AMANTINI. (2007). **VALUTAZIONI ENERGETICHE ED ECONOMICHE SULLE VARIE TECNOLOGIE DI STOCCAGGIO DELL'IDROGENO.** 7° Congresso Nazionale CIRIAF. 30-31/03/2007.

S. ARCA, DI PROFIO P, GERMANI R, SAVELLI G. (2006). **Relazioni Struttura-Proprietà nell'effetto del Co-Former sui Clatrati Idrati binari.** COFEM 2006. 21-23/09/2006.

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2006). **Novel nanotechnology-based approach to the extraction, storage and transportation of gaseous fuels: Gas Hydrates.** Le Colloque Euro-Méditerranéen sur Nanotechnologies "la science de l'infiniment petit en action. 24/03/2006.

P. DI PROFIO, S. ARCA, R. GERMANI, G. SAVELLI. (2005). **Effect of conditioners upon the thermodynamics and kinetics of methane hydrate formation. a preliminary structure-properties relationship study.** Fifth International Conference on Gas Hydrates (ICGH5). 13-16/06/2005.

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2005). **Nanostructured Media for Gas Storage and Transport: Clathrate Hydrates of Methane and Hydrogen.** First European Fuel Cell Technology and Applications Conference (EFC2005). 14-15/12/2005.

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2005). **Effetto dei Nanoaggregati Supramolecolari sul Condizionamento dei Clatrati Idrati di Metano.** XXIV Convegno Interregionale TUMA 2005. 30/09-01/10/2005.

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2004). **Investigation of clathrate Hydrate Conditioning: the Role of Premicellar Nanostructures. Renewable resources and renewable energy: a global challenge.** 10-12/06/2004. International Centre for Science and High Technology (ICS-UNIDO).

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2004).
Condizionamento dell'acqua per la formazione di clatrati idrati di gas. XXIII Convegno Interregionale TUMA 2004.
27-29/09/2004.

S. ARCA, P. DI PROFIO, R. GERMANI, G. SAVELLI. (2004).
Sistemi Nanostrutturati per il Condizionamento di Clatrati Idrati. XXIX Convegno Nazionale della Divisione di Chimica Organica, della Società Chimica Italiana. 31/08-4/09/2004.

Data ...[20/03/2012](#).....

Firma

