



## PERSONAL DATA

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Nationality **ITALY**  
Birthday **17<sup>TH</sup> APRIL 1975**

## WORK EXPERIENCE

- Date (from – to)
- Name and address of the employer
- Branch
- Type of contract
- Main responsibilities

**01/07/2004 – TODAY**

**ENEA - Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile (= Italian National Agency for New Technologies, Energy and the Sustainable Economic Development)**

Casaccia Research center, via Anguillarese 301 (Rome)

Energy Technologies and Renewable Sources Department (TERIN)

Until 14/12/2021: Solar Thermal and Smart Network Division (TERIN-STSN), Solar Technologies Engineering Laboratory (TERIN-STSN-ITES).

Since 15/12/2021: Efficient Production, Conversion and Use of Energy Division (TERIN-PCU), Laboratory for energy storage, batteries and hydrogen production and utilization technologies (TERIN-PCU-ABI).

Full time, permanent researcher

Research and development activity, project coordination and management in the field of renewable energy, particularly Concentrating Solar Power (CSP) technology and Hydrogen technologies, including: thermal energy storage, power generation and co-generation, use of solar process heat in desalination, air conditioning and high-temperature thermochemical processes for the production of “solar fuels”, Hydrogen production technologies. Innovative process routes have been studied and developed to improve process feasibility, economy, efficiency and environmental impact.

**Overall Coordinated Research and Innovation projects accounted for more than 30 M€ budget successfully managed in terms of business development, relevance of innovation results and final financial balance.**

In the following is provided a detailed list of the main activities, results and grants obtained during the working period at the ENEA. Additional information about teaching experience, training, prizes, publications, patents, assignments, participation to International Committee and Programmes, etc., done also during the job experience at the ENEA, are provided in the section “Additional information and strengths”.

### Project Coordination and Management

JULY 2022 – TODAY

**Technical-Scientific Coordinator of the Objective 1 “Production of green and clean hydrogen”** (tot. budget: 40 M€; ENEA's budget: 28.19 M€) in the Italian “Research Operational Plan for Hydrogen” implemented under a Program Agreement between the Italian Ministry for Ecological Transition (MiTE) and ENEA within the Recovery and Resilience Plan (RRP, Mission 2, Component 2, Investment 3.5).

Within this Plan, he is leader of the following Work Packages:

- WP1.1 “R&D on advanced electrolysers (low & high temperature) and other innovative technologies for low emission green hydrogen production” (including 37 activity lines)
- WP2.3 “R&D on innovative technologies for hydrogen storage: liquid, solid materials, hybrid solutions, non-organic liquid carriers” (including 8 activity lines)

JANUARY 2019 – TODAY

**Coordinator of the European Project PROMETEO** “Hydrogen PROduction by MEans of solar heat and power in high TEMperature Solid Oxide Electrolysers” (2021-2024), total budget 2,765,206 €, co-funded within the European Horizon 2020 Programme through the Fuel Cells and Hydrogen 2 Joint Undertaking (FCH 2 JU, Call reference H2020-JTI-FCH-2020-1, topic FCH-02-2-2020 – “Highly efficient hydrogen production using solid oxide electrolysis integrated with renewable heat and power”; EU Grant Agreement n. 101007194).

JANUARY 2019 – TODAY

**Coordinator of the “Concentrating Solar Power (CSP)” National Project** (2019-2021) in the Italian plan for “Electric System Research” implemented under Programme Agreements between the Italian Ministry for Economic Development and ENEA, CNR, and RSE S.p.A. Total budget: 2,000,000 €.

APRIL 2013 – OCTOBER 2018

**Coordinator of the European Project MATS** “Multipurpose Applications by Thermodynamic Solar” (2011-2018), total budget 21,960,135 €, co-funded by the European 7<sup>th</sup> Framework Programme (Call reference: Energy.2010.2, Topic 2.9-1 – Demonstration of innovating multipurpose solar plants; EU Grant Agreement n. 268219). Project Coordinator since January 2013. Member of the Management Board and Head of the Research and Technological Development Secretary of the project since July 2011.

DECEMBER 2011 – DECEMBER 2015

**Coordinator of the European Project CoMETHy** “Compact Multifuel-Energy To Hydrogen converter” (2011-2015), total budget 4,933,250 €, funded within the European 7<sup>th</sup> Framework Programme through Fuel Cells and Hydrogen Joint Undertaking (FCH JU, Call reference: FP7-SP1-JTI-FCH.2010.2.2 – Development of fuel processing catalyst, modules and systems; EU Grant Agreement n. 279075).

JANUARY 2013 – OCTOBER 2016

**Scientific representative for ENEA and Work Package leader in the European Project STS-Med** “Small scale Thermal Solar district units for Mediterranean communities” (2012-2016), ENEA’s budget: 406,201 €, co-funded by the European ENPI-CBCMED Programme (Ref. I-A/2.3/174, Priority 2 – Topic 3 – Solar Energy; Grant Agreement Ref. I-A/2.3/174, overall project budget: ca. 4.95 M€).

November 2015 – July 2016

**Scientific representative for ENEA in the European Project HYSOL** “Innovative Configuration for a Fully Renewable Hybrid CSP Plant” (2013-2016), ENEA’s budget: 521.909 €, co-funded by the European 7<sup>th</sup> Framework Programme (Call reference: Energy.2002.2.5.2 – Hybridisation of CSP with other energy sources; EU Grant Agreement n. 308912, overall project budget: ca. 9.3 M€).

June 2013 – November 2014

**Scientific representative for ENEA and Work Package leader in the European Project SOL2HY2** “Solar To Hydrogen Hybrid Cycles” (2013-2016), ENEA’s budget: 582,963 €, co-funded by the European 7<sup>th</sup> Framework Programme, Fuel Cells and Hydrogen Joint Undertaking (FCH JU, Call reference: Energy.2007.1.2.3 – Advanced Materials for High Temperature thermochemical processes; EU Grant Agreement n. 325320, overall project budget: ca. 3.7 M€).

### Participation to International Committees & Task Forces

From July 2023, Manager of Task 45 “Renewable Hydrogen” of the IEA Hydrogen Technology Collaboration Program of the International Energy Agency (**IEA Hydrogen TCP**).

From December 2021, Italian delegate for the coordination and management of activities linked with the public-private partnership for the participation to the European “**Clean Hydrogen Mission**” in the framework of **Mission Innovation 2.0**.

From January 2021, member and technical advisor in the **Task Force** for the **IPCEI** (Important Project of Common European Interest) on **Hydrogen**, in the framework of a Collaboration Agreement between ENEA and the Italian Ministry for Economic Development aimed at the establishment of the hydrogen value chain.

From December 2020, ENEA’s delegate and active member in the **Hydrogen Europe Research (HER) association** for the preparation of the Clean Hydrogen JU’s Multi-Annual and Annual funding priorities (including the drafting of call topics) in the “hydrogen production pillar” for the Roadmap RM02 “Other modes of hydrogen production” (i.e. other than electrolysis).

From 2020 **Italian alternate delegate and ExCo (alternate) member** of the International Energy Agency (IEA) SolarPACES Technology Collaboration Program (**IEA SolarPACES TCP**).

From 2017 to 2019 technical expert and advisor for ENEA in the **project GREENCAP** "Capitalisation of the green energy projects in the MED area" within the EU InterregMed program.

From 2017 **Italian delegate and ExCo member** of the International Energy Agency (IEA) Hydrogen Technology Collaboration Program (**IEA Hydrogen TCP**).

From 2015 **Italian delegate and member of the Task II "Solar Chemistry Research"** Group of the International Energy Agency (IEA) SolarPACES Technology Collaboration Program (**IEA SolarPACES TCP**).

From 2009 member of the Working Group "**Hydrogen Production and Distribution**" of the European Fuel Cells and Hydrogen Joint Undertaking (**FCH JU** - Application Area SP1-JTI-FCH.2). Working group contributor for the drafting of FCH JU Implementation Plans.

From 2007 to 2011 scientific representative for ENEA and subtask leader in Task 25 "**High Temperature Production of Hydrogen**" of the **IEA Hydrogen TCP**.

### Participation to other National and International Projects

**Hydrogen Demo Valley** project funded under the program "Mission Innovation", within a Program Agreement between the Italian Ministry for Environment and Energy Security (MASE, ex MiTE) and ENEA. Leader of Activity Line LA2.2 "Hydrogen production with innovative technologies" and member of the Working Group of the Project.

**National Project WOW SUN** "With or without the sun" funded under the program "PO FESR Sicilia 2014-2020" through the Sicilia Region. Contact person for ENEA for the preparation of the technical proposal (2017) and techno-scientific contribution during the project implementation phase (2021-2022).

**European Project OPTS** "OPTimization of a Thermal energy Storage system with integrated Steam Generator" (2011-2014), funded by the European 7<sup>th</sup> Framework Programme (Call reference: Topic: ENERGY.2011.2.5-1: Thermal energy storage for CSP plants; EU Grant Agreement n. 283138). Support to the proposal preparation and key member of the technical staff.

**PRIN 2009 National Project** "Optimization of the photothermocatalytic sulfur-ammonia process for hydrogen production" (2011-2014), funded by the Italian Ministry for the Education, University and Research (MIUR, overall project budget: 242,503 €). Support to the proposal preparation and key member of the technical staff.

**National Project METISOL** "Produzione di miscele METano-Idrogeno con cicli termochimici alimentati da energia SOLare e sistemi di stoccaggio a bordo veicolo" (=Methane/hydrogen mixtures: production by thermochemical processes powered by solar energy and on-board storage) (2011-2013), funded by the Italian Ministry for the Environment (MATTM, overall project budget: ca. 3 M€). Support to the proposal preparation and key member of the technical staff.

**European Project HycycleS** "Materials and components for Hydrogen production by sulphur based thermochemical cycleS" (2008-2011), funded by the European 7<sup>th</sup> Framework Programme (Call reference: Energy.2007.1.2.3 – Advanced Materials for High Temperature thermochemical processes, EC Contract No. 212470, overall project budget: ca. 5.2 M€). Key member of the technical staff.

**National Project TEPSI** "Tecnologie e Processi innovativi per affrontare la transizione e preparare il futuro del Sistema Idrogeno" (= Novel Technologies and Processes for the Transition to the Future Hydrogen System) (2004-2010), funded by the Italian Ministry of Industry. Key member of the technical staff.

**European Project INNOHYP CA** "INNOvative high temperature routes for HYdrogen Production – Coordinated Action" (2004-2006), funded by the European 6<sup>th</sup> Framework Programme (Call reference: Sustainable Energy Systems SES 6.1, EC Contract No. 513550, overall project budget: 617,300 €). Key member of the technical staff.

### Infrastructures, plants, and prototypes built in the framework of coordinated activities

- Laboratory mock-up for the hydrogasification of solid carbonaceous bio-wastes (ca. 1 kg/day of solid).
- Multipurpose CSP plant (ca. 5 MW thermal) under commissioning in Borg El Arab, Egypt (MATS project).
- Co-generative CSP plant (ca. 125 kW thermal) based on Fresnel collectors and innovative thermal energy storage system under construction in Palermo, Italy (STS-Med project).
- Innovative thermal energy storage prototype (ca. 900 liters) with non-externally circulating molten salts and integrated heat exchangers at ENEA-Casaccia research center, Italy (projects STS-Med & PROMETEO).
- Hydrogen production pilot plant (2 Nm<sup>3</sup>/h of pure hydrogen production) based on a membrane steam reformer heated by molten salts at ENEA-Casaccia research center, Italy (CoMETHy project).
- Gas powered Molten Salts Heater (MSH) prototype (ca. 60 kW thermal) fed by methane/biogas or LPG (projects MATS and HySOL).
- Molten Salts Experimental (MoSE) loop (ca. 50 kW thermal) for the characterization of equipment and materials with flowing molten salts at ENEA-Casaccia research center, Italy.
- Parabolic trough collector (100 meters, ca. 400 kW thermal peak power) built at the PCS facility of ENEA-Casaccia research center, Italy (MATS project).
- Laboratory mock-up for the characterization of catalysts for sulfuric acid decomposition in high temperature (up to 1000°C) thermochemical cycles (project HycycleS and SOL2HY2).

### Tutoring and supervision

Tutoring and supervision for one PdD thesis and five Master's Degree thesis done at ENEA-

### Teaching, lectures and didactic experience

**June 2023:** Hydrogen Summer School 2023, ENEA Casaccia Research Center (Rome), 6-9 June 2022. Member of the Organizing Committee and lecturer.

**March – June 2023:** Contract professor for Teaching Course “Hydrogen and Green Fuels” (48 hours) in the Master's Degree in Chemical Engineering for Sustainable Development in the Engineering Department of the Campus Bio-Medico University of Rome, 2° semester of academic year 2022/2023.

**July 2019:** Summer School for New and Renewable Energy, Cairo (Egypt), 6-11 July 2019. Organization of the school and lectures (about 10 hours total).

**June 2015:** Organization of the training course “Multi-generative concentrating solar plants” and lectures (6 hours total) for researchers, students from higher education schools, engineers, and technicians operating in the renewable energy area, organized at the Consorzio ARCA (Palermo, Italy) in the framework of the STS-Med project.

**May 2008:** Lectures (10 hours total) on “Hydrogen production from alternative sources”, made for students of the Chemical Engineering Department, University of Palermo, in the framework of provided educational activities.

**April – May 2008:** Training course (18 hours total) on “High Temperature Solar Thermal Conversion”, made for students of 1<sup>st</sup> level University Master on “Technology, economy and sustainability of distributed electric generation systems” organized in Caltanissetta (Italy) by the University of Palermo.

**January 2006:** Lectures (5 hours total) on “Hydrogen as an Energy Carrier: Production and Storage” made at the Chemical Engineering Department of the University of Palermo in the framework of an “Industrial Chemistry” Academic module.

### Other activities done at ENEA

#### July 2007 – today:

Invited evaluator for conference and journal papers. Among these: Applied Catalysis B: Environmental; Environment, Development and Sustainability; Fluid Phase Equilibria; Journal of Membrane Science; International Journal of Energy Research; International Journal of Hydrogen Energy; Industrial & Engineering Chemistry Research; Solar Energy; ASME International Conferences on Energy Sustainability; SolarPACES SolarPACES Confereces; etc.

## EDUCATION

- Dates (from – to)
- Name and type of educational institute
- Main subjects, topics and professional skills
- Title and qualification
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### July 2001 – June 2004

University of Palermo, Faculty of Engineering, Chemical Engineering Department, Italy  
PhD Course in “Tecnologie Chimiche e dei Nuovi Materiali” (= “Chemical and New Materials Technologies”)

Grant supported by MIUR (Italian Ministry of University and Research).

PhD Thesis: “Heterogeneous Processes for the Synthesis of Macromolecules in Supercritical Carbon Dioxide”.

ABSTRACT: The study (under the supervision of Prof. G. Filardo) was focused on the free radical polymerisation of vinyl monomers initiated by the thermal decomposition of suitable initiators, with and without the addition of surfactants, using different reaction systems: batch lab-scale and pilot-scale reactors, and continuous mixed reactors. Several monomers were investigated: methyl methacrylate, 1-Vinyl-2-Pyrrolidone, Vinylidene Fluoride, Tetrafluoroethylene. After the set up and assembly of the experimental apparatus, definition of experimental procedures, carrying out of the experimental campaigns, and results acquisition, the study involved the elaboration and publication of the obtained results. Four papers on quoted international journals were published, two books chapters, and several congress proceedings papers were produced, as listed hereafter.

PhD degree in “Chemical and New Materials Technologies”

### January – June 1997

University of Glamorgan, UK  
Erasmus study program

### September 1993 – November 2000

University of Palermo, Faculty of Engineering, Italy

Final project: “Effect of Density on Polymerization of Methyl Methacrylate in Carbon Dioxide Based Supercritical Fluids” (tutor: Prof. G. Filardo).

ABSTRACT: Study of the influence of pressure on the free radical dispersion polymerisation of methyl methacrylate in a CO<sub>2</sub>-based supercritical medium, using siloxane-based stabilizers.

First-class degree with honours in Chemical Engineering (final score:110/110).

## OTHER PERSONAL SKILLS AND STRENGTHS

MOTHER TONGUE  
OTHER LANGUAGES

- Reading
- Writing
- Speaking

SOCIAL SKILLS AND COMPETENCES

ORGANIZATIONAL SKILLS AND COMPETENCES

TECHNICAL SKILLS AND COMPETENCES

**ITALIAN**

**ENGLISH**

EXCELLENT

EXCELLENT

EXCELLENT

High social skills, in particular those relating to inter-cultural experience, demonstrated during the coordination and participation to several international projects, conferences, seminars, and lectures. Alberto Giaconia has represented the ENEA in several international meetings, showing excellent collaborative and group motivation attitude with project partners and colleagues. These social skills have been capitalized in the preparation of joined projects and publication of results.

High organizational skills mainly demonstrated during the coordination of complex international projects, including supervision of partners' activities and timely achievement of project objectives, dealing with critical management issues like legal aspects and disputes, budget shifts and complex financial problems, contract amendments, relationship with European Commission and North Africa and Middle East organization. Alberto Giaconia has also got wide experience in the preparation of successful project proposals in the frame of the European 7FP and Horizon 2020 Programmes: all project proposals prepared as coordinator have got high scores and in some cases got the European Commission funding.

**SOFTWARE:** Word, Excel, PowerPoint, CorelDraw, AutoCad, AspenPlus (chemical process simulator).

**EXPERIMENTAL EXPERTISE:** Scanning Electron Microscopy (SEM); Infrared Spectroscopy (FT-IR, ATR); Thermal-Gravimetric Analysis (TGA); Differential Scanning Calorimetry (DSC); Differential Thermal Analysis (DTA); Single and Twin-Screw Extruders; Parallel Plates Viscometer; Capillary Viscometer (Davenport Extrusion Rheometer); Melt Flow Index Apparatus (Davenport); Chromatography (HPLC, GC, GPC); High Pressure Vessels (30-5000 cm<sup>3</sup>); Soxhlet Extraction; Supercritical Fluid Extraction; Vacuum Distillation; Laboratory micro-reactors for catalyst performance characterization; Design, development and operation of laboratory and bench scale installations and prototypes for process engineering research.

## OTHER INFORMATION AND PROFESSIONAL QUALIFICATIONS

### Professional qualifications

**National Scientific Qualification** to function as Associate University Professor in the field of “Chemical plants and technologies” (code: 09/D3) awarded by the Italian Ministry of University and Research on 10<sup>th</sup> June 2021.

**Qualified to hold a University Researcher position in the scientific-educational field of “Basic Chemistry of Technologies”**, after a public selection at the University of Palermo in April 2008.

**Winner of public selection for a Chemical Engineer position at ENEA** (“Italian National Agency for New Technologies, Energy and the Sustainable Economic Development”) on May 2002.

**Qualified to practice as Engineer.** Qualification obtained at the University of Palermo on January 2001 – Registered on the “Ordine degli Ingegneri della Provincia di Palermo” (i.e. the Official Roll of Engineers of Palermo), N° 6423.

### Awards and prizes

**Winner of the “E2 – Eccellenze ENEA” prize**, assigned the 18th December 2008 for “the contribution given in the advancement of thermochemical water-splitting cycles powered by solar energy”, based on the research results (international prizes, publications and patents) obtained in the period 30th September 2007 – 30th September 2008.

**Winner of the “CSIRO Prize - Best Poster Award”** (2<sup>nd</sup> classified) during the 2008 WHEC Conference in Brisbane (Australia), assigned to “highly commended poster by a young researcher - for an original scientific or technical study of a standard suitable for publication at an International level and an investigation of a novel problem or application of an innovative research approach”.

**Winner of the national prize “XIII Premio Nazionale Federchimica – per un futuro intelligente”** (= “XIII National Federchimica Prize”), May 2001, assigned to new graduates for the best final year project in chemistry and related disciplines.

### Research collaboration periods in research centers

JANUARY – APRIL 2004

**Research period at the “Solvay-Solexis R&D center”, Bollate (Milan), Italy.** Investigation of the polymerization of tetrafluoroethylene in supercritical carbon dioxide using a pilot plant scale reactor (supervisor del Dott. Eng. M. Apostolo).

JANUARY – APRIL 2001

**Visiting researcher at the “Wolfson Centre for Materials Processing”, Brunel University, Middlesex, UK.** Experimental research studies on carbon dioxide assisted polymer blending.

### Consulting & Evaluation contracts and activities

JULY 2020 – TODAY

**Member of the Industrial Advisory Board for the H2020 project HiFlex**, “High storage density solar power plant for Flexible energy systems”, a Research and Innovation project dealing with the development and demonstration of an innovative Concentrating Solar technology, EU-H2020 Grant Agreement n. 857768.

FEBRUARY – MARCH 2021

**Reviewer for a PhD Thesis at Campus Bio-Medico University of Rome (Italy)**, PhD Program in “Science and Engineering for Humans and the Environment”. Title of the thesis: “Analysis of technologies for hydrogen purification with application to steam reforming process”. Candidate: Giovanni Franchi.

MAY – JUNE 2020

**Expert Evaluator of Horizon 2020 proposals for the European Commission** (Contract number CT-EX2019D350101-101) to assist the Innovation and Networks Executive Agency (INEA) with tasks in the context of managing of EU Research and Innovation programs.

APRIL – MAY 2020

**Expert Evaluator of one research proposal for the Helmholtz Association** within the “Helmholtz International Labs” funding program.

FEBRUARY – APRIL 2015

**External Examiner for a PhD candidate at The University of Saskatchewan (Canada)**, Department of Chemical and Biological Engineering. Title of the thesis: “The Experimental and Theoretical Investigation of Hydrogen Sulfide Splitting Cycle for Hydrogen Production”. Candidate: Armin Moniri.

MAY – JULY 2013

**Consultant for a Technology Audit** for Protos S.p.A.: technical evaluation of a “System energy production from Concentrating Solar Power”.

JANUARY – JULY 2013

**External Examiner for a PhD candidate at The University of Sheffield (UK)**, Chemical & Biological Engineering Dept. Title of the Thesis: “Low temperature studies for the sulphuric acid decomposition step in the HyS and SI thermochemical cycles”. Candidate: Moises Romero Gonzales.

April 2002 – March 2005

**European Project ECOPOL** “Novel Stabilizers for Sustainable Production of Fluoropolymers in Supercritical CO<sub>2</sub>” (5<sup>th</sup> FP), in the context of the PhD at the University of Palermo. Key member of the research team.

NOVEMBER 2001 – MARCH 2002

**Scientific cooperation contract in the RUCADI programme** (“Recovery and Utilisation of Carbon Dioxide, an assessment study”) for the preparations of two book chapters: “Polymer Synthesis in Supercritical Carbon Dioxide” (III.7) and “Modification of Polymers in Supercritical Carbon Dioxide” (III.8) for the Kluwer Academic Publishers.

Some results obtained in the above activities have been published in international journals and books as reported in the following sections.

## Patents

1. “Process for the removal of sulfur-containing compounds and hydrogen and sulfuric acid and/or sulfur produced thereby”. Inventors: Mauro Vignolini, Pietro Tarquini, Alberto Giaconia, Giampaolo Caputo, Salvatore Sau. Publication date: 28 December 2006. Italian patent application No.: RM 2006 A 000708.
2. “Hydrogen production process by reforming of hydrocarbons and alcohols using solar molten salts technology”. Inventors: Pietro Tarquini, Alberto Giaconia, Marcello De Falco, Giampaolo Caputo, Roberto Grena, Valeria Russo, Luigi Marrelli. Publication date: 28 December 2006. Italian patent application No.: RM 2006 A 000709.
3. “Method for producing anhydrous hydroiodic acid in the sulfur-iodine thermochemical cycle for hydrogen production from water”. Inventors: Pier Paolo Proisini, Alberto Giaconia, Salvatore Sau, Giampaolo Caputo. Publication date: 21 March 2007. Italian patent application No.: RM 2007 A 000146.
4. “Process for sulfuric acid decomposition to sulfur dioxide and/or sulfur trioxide”. Inventors: Giampaolo Caputo, Alberto Giaconia, Claudio Felici, Michela Lanchi, Raffaele Liberatore, Pier Paolo Proisini, Salvatore Sau, Pietro Tarquini, Mauro Vignolini. Publication date: 4 July 2007. Italian patent application No.: BO 2007 A 000457.
5. “Thermochemical cycle for hydrogen production”. Inventors: Pier Paolo Proisini, Salvatore Sau, Alberto Giaconia, Giampaolo Caputo, Cinzia Cento. Publication date: 25 January 2008. Italian patent application No.: BO 2008 A 000049.
6. “Back-up boiler system for a solar thermal power plant based on molten salt technology, a solar thermal power plant and a method for operating a solar thermal power plant”. Inventors: Gaetano Iaquaniello, Daniela Capoferri, Adriano Barsi, Fabrizio Fabrizi, Walter Gaggioli, Alberto Giaconia, Luca Rinaldi. US Patent n. US2015/0089944 A1 published 2 April 2015. European patent n. 12160187.6-2321 filed 19 March 2012. This patent has been applied in the design, construction and operation of a pre-commercial prototype in the project MATS (see list of projects) and results published (see list of publications).
7. “Method to manage the start-up and shut-down phases of parabolic trough concentrating solar plants using molten salt mixtures heat transfer fluids”. Inventors: Fabrizio Fabrizi, Pietro Tarquini, Michela Lanchi, Salvatore Sau, Annarita Spadoni, Alberto Giaconia. Publication date: 26 April 2011. Italian patent application No.: 000212.
8. “Thermal energy storage assembly”. Inventors: Alberto Giaconia, Giampaolo Caputo, Filippo Donato, Giuseppe Petroni, Luca Rinaldi, Pietro Tarquini. Publication date: 28 July 2015. Italian patent application No.: 102015000038939.
9. “Method and plant for the treatment of carbon-based waste”. Inventors: Alberto Giaconia, Silvano Tosti, Giampaolo Caputo, Alfonso Pozio. Publication date: 9 July 2021. Italian patent application No.: 102021000018125.



**Publications in International journals**

1. A. Galia, A. Giaconia, V. Iaia, G. Filardo: "Synthesis of Hydrophilic Polymers in Supercritical Carbon Dioxide in the Presence of a Siloxane-Based Macromonomer Surfactant: Heterogeneous Polymerization of 1-Vinyl-2 Pyrrolidone"; *Journal of Polymer Science: Part A: Polymer Chemistry*, 2004, vol.42, p.173-185; DOI: 10.1002/pola.10995; ISSN:0887-624X; E-ISSN:1099-0518.
2. A. Galia, A. Giaconia, O. Scialdone, M. Apostolo, G. Filardo: "Polymerization of Vinylidene Fluoride with Perfluoropolyether Surfactants in Supercritical Carbon Dioxide as a Dispersing Medium"; *Journal of Polymer Science: Part A: Polymer Chemistry*, 2006, vol.44, p.2406-2418. DOI: 10.1002/pola.21352; ISSN:0887-624X; E-ISSN:1099-0518; ISSN:0887-624X; E-ISSN:1099-0518.
3. A. Giaconia, G. Filardo, O. Scialdone, A. Galia: "Continuous Reaction System to Investigate the Dispersion Polymerization of Vinyl Monomers in Supercritical Carbon Dioxide"; *Journal of Polymer Science: Part A: Polymer Chemistry*, 2006, vol.44, p.4122-4135. DOI: 10.1002/pola.21513; ISSN:0887-624X; E-ISSN:1099-0518.
4. A. Giaconia, R. Grena, M. Lanchi, R. Liberatore, P. Tarquini: "Hydrogen/methanol production by sulfur-iodine thermochemical cycle powered by combined solar/fossil energy"; *International Journal of Hydrogen Energy*, 2007, vol.32, p.469-481. DOI:10.1016/j.ijhydene.2006.05.013; ISSN:0360-3199.
5. A. Giaconia, G. Caputo, A. Ceroli, M. Diamanti, V. Barbarossa, P. Tarquini, S. Sau: "Experimental study of two phase separation in the Bunsen section of the sulfur-iodine thermochemical cycle"; *International Journal of Hydrogen Energy*, 2007, vol.32, p.531-536. doi:10.1016/j.ijhydene.2006.08.015; ISSN:0360-3199.
6. G. Caputo, C. Felici, P. Tarquini, A. Giaconia, S. Sau: "Membrane distillation of HI/H<sub>2</sub>O and H<sub>2</sub>SO<sub>4</sub>/H<sub>2</sub>O mixtures for the sulfur-iodine thermochemical process"; *International Journal of Hydrogen Energy*, 2007, vol.32, p.4736-4743. DOI: 10.1016/j.ijhydene.2007.07.011; ISSN:0360-3199.
7. A. Giaconia, O. Scialdone, M. Apostolo, G. Filardo, A. Galia: "Surfactant Assisted Polymerization of Tetrafluoroethylene in Supercritical Carbon Dioxide with a Pilot Scale Batch Reactor"; *Journal of Polymer Science: Part A: Polymer Chemistry*, 2008, vol.46, p.257-266. DOI: 10.1002/pola.22377; ISSN:0887-624X; E-ISSN:1099-0518.
8. A. Giaconia, M. De Falco, G. Caputo, R. Grena, P. Tarquini, L. Marrelli: "Solar Steam Reforming of Natural Gas for Hydrogen Production using Molten Salt Heat Carriers"; *AIChE Journal*, 2008, vol.54, pagg.1932-1944. DOI: 10.1002/aic.11510; ISSN:0001-1541 E-ISSN:1547-5905.
9. S. Sau, A. Giaconia, G. Caputo, P.P. Prosini: "Decrease the rate of recycling agents in the sulfur-iodine cycle by solid phase separation"; *International Journal of Hydrogen Energy*, 2008, vol.33, p.6439-6444. DOI: 10.1016/j.ijhydene.2008.07.124; ISSN:0360-3199.
10. M. De Falco, A. Giaconia, L. Marrelli, P. Tarquini, R. Grena, G. Caputo: "Enriched methane production using solar energy: an assessment of plant performance"; *International Journal of Hydrogen Energy*, 2009, vol.34, p.98-109. DOI: 10.1016/j.ijhydene.2008.09.085; ISSN:0360-3199.
11. P.P. Prosini, C. Cento, A. Giaconia, G. Caputo, S. Sau: "A modified sulphur-iodine cycle for efficient solar hydrogen production"; *International Journal of Hydrogen Energy*, 2009, vol.34, p.1218-1225. DOI: 10.1016/j.ijhydene.2008.11.011; ISSN:0360-3199.
12. A. Giaconia, G. Caputo, S. Sau, P.P. Prosini, A. Pozio, M. De Francesco, P. Tarquini, L. Nardi: "Survey of Bunsen reaction routes to improve the sulfur-iodine thermochemical water-splitting cycle"; *International Journal of Hydrogen Energy*, 2009, vol.34, p.4041-4048. DOI: 10.1016/j.ijhydene.2008.11.009; ISSN:0360-3199.
13. V. Piemonte, M. De Falco, P. Tarquini, A. Giaconia: "Life cycle assessment of a high temperature molten salt concentrated solar power plant"; *Computer Aided Chemical Engineering*, 2010, vol.28(C), p. 1063-1068. DOI: 10.1016/S1570-7946(10)28178-6; ISSN:1570-7946.
14. M. Parisi, A. Giaconia, S. Sau, A. Spadoni, G. Caputo, P. Tarquini: "Bunsen reaction and hydriodic phase purification in the sulfur-iodine process: An experimental investigation"; *International Journal of Hydrogen Energy*, 2011, vol.36, p.2007-2013. DOI: 10.1016/j.ijhydene.2010.11.039; ISSN:0360-3199.
15. A. Giaconia, S. Sau, C. Felici, P. Tarquini, G. Karagiannakis, C. Pagkoura, C. Agrafiotis, A.G. Kostandopoulos, D. Thomey, L. de Oliveira, M. Roeb, C. Sattler: "Hydrogen production via sulfur-based thermochemical cycles: Part 2: Performance evaluation of Fe<sub>2</sub>O<sub>3</sub>-based catalysts for the sulfuric acid decomposition step"; *International Journal of Hydrogen Energy*, 2011, vol.11, p.6496-6509. DOI: 10.1016/j.ijhydene.2011.02.137; ISSN:0360-3199.
16. V. Piemonte, M. De Falco, P. Tarquini, A. Giaconia: "Life cycle assessment of a high temperature molten salt concentrated solar power plant"; *Solar Energy*, 2011, vol.85, p. 1101-1108. DOI: 10.1016/j.solener.2011.03.002; ISSN:0038-092X.
17. O. Galzim, C. Mansilla, A. Giaconia, S. Poitou, J. Hinkley, S.D. Ebbesen, M. Gasik, et al.: "A multicriteria approach for evaluating high temperature hydrogen production processes"; *International Journal of Multicriteria Decision Making*, 2011, vol.1, p.177-204. DOI: 10.1504/IJMCDM.2011.039586; ISSN:2040-106X; E-ISSN:2040-1078.
18. R. Liberatore, M. Lanchi, G. Caputo, C. Felici, A. Giaconia, S. Sau, P. Tarquini: "Hydrogen production by flue gas through sulfur-iodine thermochemical process: Economic and energy evaluation"; *International Journal of Hydrogen Energy*, 2012, vol.37, p.8939-8953. DOI: 10.1016/j.ijhydene.2012.02.163; ISSN:0360-3199.
19. R. Liberatore, M. Lanchi, A. Giaconia, P. Tarquini: "Energy and economic assessment of an industrial plant for the hydrogen production by water-splitting through the sulfur-iodine thermochemical cycle powered by concentrated solar energy"; *International Journal of Hydrogen Energy*, 2012, vol.37, p.9550-9565. DOI: 10.1016/j.ijhydene.2012.03.088; ISSN:0360-3199.
20. V. Piemonte, M. De Falco, A. Giaconia, A. Basile, G. Iaquaniello "Production of enriched methane by a molten-salt concentrated solar power plant coupled with a steam reforming process: An LCA study"; *International Journal of Hydrogen Energy*, 2012, vol.37, p.11556-11561. DOI: 10.1016/j.ijhydene.2012.03.064; ISSN:0360-3199.

21. M. Roeb, D. Thomey, L. De Oliveira, C. Sattler, G. Fleury, F. Pra, P. Tochon, A. Brevet, G. Roux, N. Gruet, C. Mansilla, F. Lenaour, S. Poitou, R.W. Allen, R. Elder, G. Karagiannakis, C. Agrafiotis, A. Zygogianni, C. Pagkoura, A.G. Konstandopoulos, A. Giaconia, S. Sau, P. Tarquini, S. Haussener, A. Steinfeld, I. Canadas, A. Orden, M. Ferrato: "Sulphur based thermochemical cycles: Development and assessment of key components of the process", *International Journal of Hydrogen Energy*, 2013, vol.38, p. 6197-6204. DOI: 10.1016/j.ijhydene.2013.01.068; ISSN:0360-3199.
22. S. Gopalakrishnan, M.G. Faga, I. Miletto, S. Coluccia, G. Caputo, S. Sau, A. Giaconia, G. Berlier: "Unravelling the structure and reactivity of supported Ni particles in Ni-CeZrO<sub>2</sub> catalysts", *Applied Catalysis B: Environmental*, 2013, vol.138-139, p.353-361. DOI: 10.1016/j.apcatb.2013.02.036; ISSN:0926-3373; E-ISSN:1873-3883.
23. S.D. Angeli, G. Monteleone, A. Giaconia, A. Lemonidou: "State-of-the-art catalysts for CH<sub>4</sub> steam reforming at low temperature", *International Journal of Hydrogen Energy*, 2014, vol.39, p.1979-1997. DOI: 10.1016/j.ijhydene.2013.12.001; ISSN:0360-3199.
24. L. Turchetti, M.A. Murrura, G. Monteleone, A. Giaconia, A.A. Lemonidou, S.D. Angeli, V. Palma, C. Ruocco, M.C. Annesini. "Kinetic assessment of Ni-based catalysts in low-temperature methane/biogas steam reforming", *International Journal of Hydrogen Energy*, 2016, vol.41, p. 16865–16877. DOI: 10.1016/j.ijhydene.2016.07.245; ISSN:0360-3199.
25. A. Giaconia, G. Caputo, A. Ienna, D. Mazzei, B. Schiavo, O. Scialdone, A. Galia. "Biorefinery process for hydrothermal liquefaction of microalgae powered by a concentrating solar plant: A conceptual study", *Applied Energy*, 2017, vol. 208, p. 1139-1149. DOI: 10.1016/j.apenergy.2017.09.038; ISSN:0306-2619.
26. R. Bleta, B. Schiavo, N. Corsaro, P. Costa, A. Giaconia, L. Interrante, E. Monflier, G. Pipitone, A. Ponchel, S. Sau, O. Scialdone, S. Tilloy, A. Galia. "Robust Mesoporous CoMo/γ-Al<sub>2</sub>O<sub>3</sub> Catalysts from Cyclodextrin-Based Supramolecular Assemblies for Hydrothermal Processing of Microalgae: Effect of the Preparation Method", *ACS Applied Materials and Interfaces*, 2018, vol.10, p. 12562–12579. DOI: 10.1021/acsami.7b16185; ISSN:1944-8244; E-ISSN:1944-8252.
27. D. De Martinis, A. Giaconia. "Production and Management of Energy: The Interdisciplinary Approach of ENEA to Concentrated Solar Power", *Journal of Renewable Energy and Sustainable Development*, 2017, vol. 3, Issue 3, December 2017, p. 277-283. DOI: <http://dx.doi.org/10.21622/resd.2017.03.3.277>. eISSN: 2356-8569.
28. M.H. Ahmed, A. Giaconia, A.M-A. Amin. "Mathematical Modelling for the Thermal Performance of a Solar Parabolic Trough Concentrator (PTC) Under Egyptian Climate", *International Journal of Thermal & Environmental Engineering*, 2018, vol. 17, p. 51-58. DOI: 10.5383/ijtee.17.01.006.
29. G. Caputo, I. Balog, A. Giaconia, S. Sau, A. Pozio. "Experimental Study for H<sub>2</sub> Concentration by Electro-Electrodialysis (EED) Cells in the Water Splitting Sulfur-Iodine Thermochemical Cycle", *ChemEngineering* 2019, vol.3, issue 2, p.50. DOI: doi:10.3390/chemengineering3020050.
30. A. Giaconia, G. Iaquaniello, A. Amin Metwally, G. Caputo, I. Balog. "Experimental demonstration and analysis of a CSP plant with molten salt heat transfer fluid in parabolic troughs". *Solar Energy*. 2020, vol.211, p. 622–632. DOI: <https://doi.org/10.1016/j.solener.2020.09.091>.
31. A. Giaconia, G. Iaquaniello, G. Caputo, B. Morico, A. Salladini, L. Turchetti, G. Monteleone, A. Giannini, E. Palo. "Experimental validation of a pilot membrane reactor for hydrogen production by solar steam reforming of methane at maximum 550°C using molten salts as heat transfer fluid", *International Journal of Hydrogen Energy*, 2020, vol.45, p. 33088–33101. DOI: <https://doi.org/10.1016/j.ijhydene.2020.09.070>.
32. M. De Falco, G. Santoro, M. Capocelli, G. Caputo, A. Giaconia. "Hydrogen production by solar steam methane reforming with molten salts as energy carriers: Experimental and modelling analysis", *International Journal of Hydrogen Energy*, 2021, vol.46, p. 10682–10696. DOI: <https://doi.org/10.1016/j.ijhydene.2020.12.172>.
33. A. Giaconia, R. Grena. "A model of integration between PV and thermal CSP technologies". *Solar Energy*. 2021, vol.224, p. 149–159. DOI: <https://doi.org/10.1016/j.solener.2021.05.043>.
34. A. Giaconia, G. Iaquaniello, B. Morico, A. Salladini, E. Palo. "Techno-economic assessment of solar steam reforming of methane in a membrane reactor using molten salts as heat transfer fluid". *International Journal of Hydrogen Energy*, 2021, vol.46, p. 35172–35188. DOI: <https://doi.org/10.1016/j.ijhydene.2021.08.096>.
35. A. Giaconia, A.C. Tizzoni, S. Sau, N. Corsaro, E. Mansi, A. Spadoni, T. Delise. "Assessment and Perspectives of Heat Transfer Fluids for CSP Applications". *Energies*. 2021, vol.14, 7486. <https://doi.org/10.3390/en14227486>.
36. A. Giaconia, I. Balog, G. Caputo. "Hybridization of CSP Plants: Characterization of a Molten Salt Heater for Binary and Ternary Nitrate Salt Mixtures Fueled with Gas/Biogas Heaters". *Energies*. 2021, vol.14, 7652. <https://doi.org/10.3390/en14227652>.
37. L. Pilotti, M. Colombari, A.F. Castelli, M. Binotti, A. Giaconia, E. Martelli. "Simultaneous design and operational optimization of hybrid CSP-PV plants". *Applied Energy*. 2023, vol.331, 120369. <https://doi.org/10.1016/j.apenergy.2022.120369>.
38. A. Bertino, M.B. Falasconi, A. Giaconia, V. Piemonte. "Simulation and optimization of an innovative thermochemical water splitting cycle for the production of green hydrogen". *International Journal of Hydrogen Energy*. 2023, vol.48, 25263. DOI: <https://doi.org/10.1016/j.ijhydene.2023.03.302>.
39. J. Neves, A. Giaconia, L.M. Madeira, S. Tosti. "Refuse derived fuel hydrogasification coupled with methane steam reforming" *International Journal of Hydrogen Energy*. 2023, vol.48, 27918. DOI: <https://doi.org/10.1016/j.ijhydene.2023.03.436>.

#### Publications in Book chapters

1. G. Filardo, A. Galia, A. Giaconia: "Polymer Synthesis in Supercritical Carbon Dioxide", in "Carbon Dioxide Recovery and Utilization", Aresta M. Ed., Kluwer Ac. Pubbl., Dordrecht, 2003; pagg.181-195.
2. G. Filardo, A. Galia, A. Giaconia: "Modification of Polymers in Supercritical Carbon Dioxide ", in "Carbon Dioxide Recovery and Utilization", Aresta M. Ed., Kluwer Ac. Pubbl., Dordrecht, 2003; pagg.197-207.

3. A. Giaconia: "Hydrogen production by solar steam reforming as a fuel decarbonization route", book chapter in "CO<sub>2</sub>: A Valuable Source of Carbon – Green Energy and Technology", Springer Ed., London, 2013; pagg.109-121. DOI: 10.1007/978-1-4471-5119-7\_7; ISSN:1865-3529E-ISSN:1865-3537.
4. A. Giaconia, G. Caputo: "Membrane technologies for solar-hydrogen production", book chapter (Chapter 12) in "Membranes for Clean and Renewable Power Applications", Edited by: Annarosa Gigliuzza and Angelo Basile, Woodhead Publishing Ltd. 2014, pagg.325-346. DOI: 10.1533/9780857098658.5.325; ISBN: 978-085709545-9.
5. G. Caputo, A. Giaconia: "Membrane technologies for solar-desalination plants", book chapter (Chapter 13) in "Membranes for Clean and Renewable Power Applications", Edited by: A. Gigliuzza and A. Basile, Woodhead Publishing Ltd. 2014, pagg.347-364. DOI: 10.1533/9780857098658.5.347; ISBN: 978-085709545-9.
6. A. Giaconia: "Thermochemical production of hydrogen", book chapter (Chapter 10) in "Advances in Hydrogen Production, Storage and Distribution, 1st Edition", Edited by: A. Basile and A. Iulianelli, Woodhead Publishing Ltd. 2014, pagg.263-280. DOI: 10.1533/9780857097736.2.263; ISBN: 978-085709773-6;978-085709768-2.
7. A. Giaconia: "Palladium membranes in solar steam reforming", book chapter (Chapter 10) in "Palladium Membrane Technology for Hydrogen Production, Carbon Capture and Other Applications: Principles, Energy Production and Other Applications". 10 October 2014, Pages 215-220, Edited by: A. Doukelis, K. Panopoulos, A. Koumanalos and E. Kakaras, Woodhead Publishing Ltd. 2015. DOI: 10.1533/9781782422419.2.215; ISBN: 978-178242241-9;978-178242234-1.
8. A. Giaconia, L. Turchetti: "Membrane Reactors Powered by Solar Energy", book chapter (Chapter 10) in "Membrane Reactor Engineering: Applications for a Greener Process Industry", Edited by: Angelo Basile, M. De Falco, G. Centi, G. Iaquaniello. John Wiley & Sons, Ltd. 2016. DOI: 10.1002/9781118906842.ch10; ISBN: 978-111890684-2;978-111890680-4.
9. A. Giaconia, G. Caputo, L. Turchetti, A. Giannini, G. Monteleone, G. Iaquaniello, B. Morico, A. Salladini, E. Palo: "Hydrogen recovery by membrane technology", book chapter (Chapter 13) in "Current Trends and Future Developments on (Bio-) Membranes – New Perspectives on Hydrogen Production, Separation, and Utilization", Edited by: Adolfo Iulianelli and Angelo Basile. Elsevier Inc, 2020. DOI: <https://doi.org/10.1016/C2018-0-01640-0>; ISBN: 978-0-12-817384-8.
10. A. Giaconia, M. Della Pietra, G. Monteleone, G. Nigliaccio: "Development perspective for green hydrogen production", book chapter (Chapter 5) in "Hydrogen Production and Energy Transition, Volume 1", Edited by: Marcel Van de Voorde. De Gruyter, 2021. DOI: <https://doi.org/10.1515/9783110596250>.

#### Other publications in National Journals

1. A. Giaconia, P. Tarquini, M. Vignolini: "Cicli termochimici di idrolisi per la produzione di idrogeno"; Energia, Ambiente e Innovazione, 2006, vol.3, p.58-74.
2. A. Giaconia, G. Giorgiantoni, R. Liberatore, P. Tarquini, M. Vignolini: "Il progetto INNOHYP-CA: produzione di idrogeno mediante processi innovativi ad alta temperatura"; Energia, Ambiente e Innovazione, 2008, vol.1, p.44-55.
3. A. Fontanella, M. Falchetta, A. Giaconia, E. Metelli, A. Miliuzzi: "ENEA: come utilizzare l'energia solare per far funzionare le fabbriche"; Industria Italiana – Analisi e News su Economia Reale, Innovazioni, Digital Transformation, 2<sup>nd</sup> December 2017.
4. A. Giaconia, G. Caputo, L. Turchetti, G. Monteleone: "A new generation of renewable powered reforming processes"; Energia, Ambiente e Innovazione, special issue "Planet Hydrogen", 2021, vol.1, p.82-87. DOI 10.12910/EAI2021-017.
5. S. Sau A.C. Tizzoni, A. Giaconia, M. Lanchi, L. Turchetti: "Splitting water with renewable heat: green hydrogen beyond electrolysis"; Energia, Ambiente e Innovazione, special issue "Planet Hydrogen", 2021, vol.1, p.88-94. DOI 10.12910/EAI2021-018.
6. A. Giaconia, S. Tosti, G. Caputo, A. Pozio: "Combustibili "green" da rifiuti ed energie rinnovabili" (= "Green Fuels from Wastes and Renewable Energy"; La Chimica e l'Industria, Anno VI, N°3, Maggio/Giugno 2022. DOI: <http://dx.medra.org/10.17374/CI.2022.104.3.52>

#### Publications in Conference proceedings

1. 8<sup>th</sup> Meeting on Supercritical Fluids, Bordeaux (France), 14-17 April 2002. Contribution: "*Dispersion Copolymerisation of Methyl Methacrylate and Hydrophilic Vinyl Monomers in Supercritical Carbon Dioxide*" G. Filardo, A. Galia, A. Giaconia. Congress Proceedings: Tome 1, p.255-260.
2. 4<sup>th</sup> International Symposium on High Pressure Technology and Chemical Engineering, Venice (Italy), 22-25 September 2002. Contribution: "*Dispersion Copolymerisation of Methyl Methacrylate and Hydrophilic Vinyl Monomers in Supercritical Carbon Dioxide*" G. Filardo, A. Giaconia, V. Iaia, A. Galia. Congress Proceedings: vol.2, p.651-655.
3. 6<sup>th</sup> International Symposium on Supercritical Fluids, Versailles (France), 28-30 April 2003. Oral Communication: "*Heterogeneous Polymerization of 1-Vinyl-2-Pyrrolidone in SC Carbon Dioxide in the Presence of Reactive Polydimethylsiloxane Surfactants*" A. Galia, A. Giaconia, V. Iaia, G. Filardo. Congress Proceedings: Tome 2, p.1363-1366.
4. 9<sup>th</sup> Meeting on Supercritical Fluids, Trieste (Italy), 13-16 June 2004. Poster Presentation: "*Continuous Dispersion Polymerization of Methyl Methacrylate in scCO<sub>2</sub>*" A. Galia, A. Giaconia, O. Sciladone, G. Filardo. Included in Congress Proceedings CD.
5. GRICU Conference 2004, Ischia (Naples, Italy), 12-15 September 2004. Contribution: "*Continuous Dispersion Polymerization of Vinyl Monomers in Supercritical CO<sub>2</sub>*" A. Giaconia, G. Filardo, B. Schiavo, A. Galia. Proceedings: vol. II, pagg. 1395-1398.
6. 2005 AIChE Spring National Meeting, Atlanta (Georgia, USA), 10-14 April 2005. Participation and Contribution: "*H<sub>2</sub>/Methanol Production by Sulfur-Iodine Thermochemical Cycle Powered by Combined Solar/Fossil Energy*" A. Giaconia, R. Grena, M. Lanchi, R. Liberatore, P. Tarquini. Included in Congress Proceedings CD.

7. 2<sup>nd</sup> International Conference on Hydrogen Era (H2www@Sicily), Palermo (Italy), 16-19 October 2005. Oral Communication: "*H<sub>2</sub>/Methanol Production by Sulfur-Iodine Thermochemical Cycle Powered by Combined Solar/Fossil Energy*" A. Giaconia, R. Grena, M. Lanchi, R. Liberatore, P. Tarquini; Proceedings: Chemical Engineering Transactions, 2005, vol.8, pagg.141-147.
8. 2005 AIChE Annual National Meeting, Cincinnati (Ohio, USA), 30 October - 4 November 2005. Oral Communication: "*Experimental Study of the Bunsen Reaction for the S-I Thermochemical Cycle*" G. Caputo, C. Felici, A. Giaconia, M. Lanchi, R. Liberatore, S. Sau. Included in Congress Proceedings CD.
9. 2<sup>nd</sup> European Hydrogen Energy Conference, Zaragoza (Spain), 22-25 November 2005. Contribution: "*A Water-Splitting Route for Hydrogen Generation by Sulfur-Iodine Thermochemical Cycle Powered by Combined Solar/Biomass Energy Sources*" A. Giaconia, G. Caputo, R. Grena, M. Lanchi, R. Liberatore, P. Tarquini. Congress Proceedings: p.375-377.
10. 2006 AIChE Spring National Meeting, Orlando (Florida, USA), 23-27 April 2006. Oral Communication: "*Development of Separation Processes Based on Membrane Technology for the S-I Thermochemical Cycle*" G. Caputo, C. Felici, A. Giaconia, S. Sau. Included in Congress Proceedings CD.
11. 2006 AIChE Annual National Meeting, San Francisco (California, USA), 12-17 November 2006. Contribution: "*Experimental and Theoretical Investigation into Alternative Versions of the Bunsen Reaction*" Michela Lanchi, Giampaolo Caputo, Claudio Felici, Alberto Giaconia, Salvatore Sau. Included in Congress Proceedings CD.
12. 2006 AIChE Annual National Meeting, San Francisco (California, USA), 12-17 November 2006. Contribution: "*Solar Configuration Study of Sulphuric Acid Thermal Decomposition in the S-I Thermochemical Hydrogen Production Process*" Salvatore Sau, Giampaolo Caputo, Claudio Felici, Alberto Giaconia, Roberto Grena, Valeria Russo. Included in Congress Proceedings CD.
13. 8<sup>th</sup> International Conference on Chemical and Process Engineering, Porto di Ischia (Napoli, Italy), 24-27 June 2007. Contribution: "*Membrane distillation of H<sub>2</sub>O-HI mixtures for the S-I thermochemical water splitting process*" Caputo G., Giaconia A., Felici C., Lanchi M., Sau S.; Proceedings: Chemical Engineering Transactions, 2007, vol.11, pagg.935-940.
14. 2<sup>nd</sup> International Hydrogen Energy Congress and Exhibition IHEC 2007, Istanbul (Turkey), 13-15 July 2007. Contribution: "*Design of an Industrial Methane Membrane Steam Reformer: Study of Efficiency Improvement*" M. De Falco, L. Marrelli, A. Basile, F. Gallucci, A. Giaconia, L. Di Paola. Included in Congress Proceedings CD.
15. 2<sup>nd</sup> International Hydrogen Energy Congress and Exhibition IHEC 2007, Istanbul (Turkey), 13-15 July 2007. Co Contribution: "*Modification of the Sulfur-Iodine thermochemical cycle using methathesis reactions with insoluble lead salts as recycle reagents*" Alberto Giaconia, Salvatore Sau, Giampaolo Caputo, Pietro Tarquini, Pier Paolo Prosini. Included in Congress Proceedings CD.
16. 2007 AIChE Annual National Meeting, Salt Lake City (Utah, USA), 4-9 November 2007. Oral Communication: "*Continuous Flow Operation of a Bunsen Reactor in the Sulfur-Iodine Thermochemical Water-Splitting Cycle*" Alberto Giaconia, Salvatore Sau, Giampaolo Caputo, Claudio Felici, Pietro Tarquini. Included in Congress Proceedings CD.
17. 20<sup>th</sup> World Energy Congress, Rome (Italy), 11-15 November 2007. Poster Presentation: "*Hydrogen production by Steam Methane Reforming Powered by Concentrated Solar Energy*" Alberto Giaconia, Marcello De Falco, Giampaolo Caputo, Roberto Grena, Claudio Felici, Luigi Marrelli, Pietro Tarquini. Included in Congress Proceedings.
18. 3<sup>er</sup> Encuentro Sectorial del Hidrógeno y las Pilas de Combustible, Santiago de Compostela (Spain), 13-15 November 2007. Contribution: "*Low temperature decomposition of sulphuric acid by using iron(III) sulphate in the Sulphur-Iodine water splitting thermochemical cycle*" Giampaolo Caputo, Pietro Tarquini, Alberto Giaconia, Pierpaolo Prosini, Salvatore Sau. Included in Congress Proceedings.
19. 17<sup>th</sup> World Hydrogen Energy Conference WHEC 2008, Brisbane (Australia), 15-19 June 2008. Contribution: "*High Temperature hydrogen Production process : a new task from the International Energy Agency / Hydrogen Implementing Agreement*" G. Rodriguez, S. Poitou, C. Mansilla, N. Haquet, C. Sattler, M. Roeb, G. Kolb, N. Siegel, A. Giaconia, R. Liberatore, P. Tarquini, A. Meier, R. Allen, J.C. Hoguet, R. Moliner, M. Gasik, A. Lokkiluoto, S.D. Ebbesen. Included in Congress Proceedings CD (n. 249).
20. 17<sup>th</sup> World Hydrogen Energy Conference WHEC 2008, Brisbane (Australia), 15-19 June 2008. Contribution: "*Evaluation on the electroelectrodialysis to concentrate HI from HI/H<sub>2</sub>O/I<sub>2</sub> Mixture in SI thermochemical cycle using new electrode*" G. Caputo, C. Felici, A. Giaconia, A. Spadoni, S. Sau, M. De Francesco, A. Pozio. Included in Congress Proceedings CD (n. 614).
21. 17<sup>th</sup> World Hydrogen Energy Conference WHEC 2008, Brisbane (Australia), 15-19 June 2008. Poster Presentation: "*Improvement of SI water splitting cycle by using nickel compounds intermediates*" P. P. Prosini, S. Sau, G. Caputo, C. Cento, A. Giaconia. Included in Congress Proceedings CD (n. 632).
22. 17<sup>th</sup> World Hydrogen Energy Conference WHEC 2008, Brisbane (Australia), 15-19 June 2008. Poster Presentation: "*Use of molten nitrates heat carriers in the solar steam reforming of methane*" A. Giaconia, M. De Falco, G. Caputo, R. Grena, P. Tarquini, L. Marrelli. Included in Congress Proceedings CD (n. 654).
23. 2008 AIChE Annual National Meeting, Philadelphia (Pennsylvania, USA), 16-21 November 2008. Contribution: "*Low Temperature Production of SO<sub>2</sub> from H<sub>2</sub>SO<sub>4</sub> In the SI Thermochemical Cycle by Using Iron(III) Sulfate Intermediate*" S. Sau, P. Tarquini, P. P. Prosini, A. Giaconia, G. Caputo, R. Liberatore, M. Lanchi. Included in Congress Proceedings CD.
24. World Hydrogen Technologies Convention WHTC 2009, New Delhi (India), 26-28 August 2009. Oral Communication: "*Going Forward with Global Collaboration: The International Energy Association (IEA) Hydrogen Implementing Agreement (IEA HIA) Strategic Plan for the next Five Years (2009-2014)*" A. G. Conde, J. J. Jensen, S. Pearce, M-R de Valladares, A. Giaconia. Included in Congress Proceedings CD.
25. 3<sup>rd</sup> World Congress of Young Scientists on Hydrogen Energy Systems Hysdays 2009, Turin, 7-9 October 2009. Contribution: "*Solar Steam Reforming of Methane Using Molten Salts as Heat Carrier*" I. Labach, A. Giaconia, S. Sau. Included in Congress Proceedings CD.
26. 2009 AIChE Annual National Meeting, Nashville (Tennessee, USA), 8-13 November 2009. Contribution: "*Hydrogen Production by Sulphur Iodine Cycle Fed by Solar Energy: Realization of a Laboratory Plant and Possible Spin-off On the Industrial Field*" R.

- Liberatore, G. Caputo, P. Favuzza, C. Felici, A. Giaconia, M. Lanchi, S. Sau, A. Spadoni, P. Tarquini. Included in Congress Proceedings CD.
27. 2009 AIChE Annual National Meeting, Nashville (Tennessee, USA), 8-13 November 2009. Contribution: "*Experimental Studies of the Bunsen Reaction in the Sulfur-Iodine Process*" M. Parisi, A. Giaconia, S. Sau, G. Caputo, P. Tarquini. Included in Congress Proceedings CD.
  28. 18<sup>th</sup> World Hydrogen Energy Conference WHEC 2010, Essen (Germany), 16-21 May 2010. Contribution: "*Experimental and Theoretical Studies of Solar Steam Reforming Assisted by Molten Salts*" A. Giaconia, I. Labach, G. Caputo, S. Sau. Included in Congress Proceedings CD.
  29. 18<sup>th</sup> World Hydrogen Energy Conference WHEC 2010, Essen (Germany), 16-21 May 2010. Poster Presentation: "*Analysis and Development of the Bunsen Section in the Sulfur-Iodine Process*" A. Giaconia, S. Sau, G. Caputo. Included in Congress Proceedings CD.
  30. 60<sup>th</sup> Canadian Chemical Engineering Conference CSChE 2010, Saskatoon (Canada), 24-27 October 2010. Oral Presentation: "*ENEA's Activities on Thermochemical Hydrogen Production from New and Renewable Sources*" A. Giaconia, G. Caputo, S. Sau, C. Felici, P. Tarquini. Included in Congress Proceedings.
  31. V. Piemonte, M. De Falco, A. Giaconia, P. Tarquini, G. Iaquaniello: "Life cycle assessment of a concentrated solar power plant for the production of enriched methane by steam reforming process". Chemical Engineering Transactions, Volume 21, 2010, Pages 25-30. DOI: 10.3303/CET1021005; ISSN:2283-9216; ISBN: 978-889560805-1.
  32. 19<sup>th</sup> World Hydrogen Energy Conference WHEC 2012, Toronto (Canada), 3-7 June 2012. Contribution: "*Solar steam reforming of biogas using molten salt heat carriers*" G. Caputo, C. Felici, C. Patriarca, A. Giaconia, S. Sau.
  33. 19<sup>th</sup> World Hydrogen Energy Conference WHEC 2012, Toronto (Canada), 3-7 June 2012. Oral Presentation: "*Development of a multi-fuelled low-temperature steam reformer for hydrogen production*" A. Giaconia.
  34. SolarPaces Conference 2012, Marrakech (Morocco), 11-14 September 2012. Poster presentation: "*Development of a solar powered steam reformer for hydrogen production using molten salts as solar heat carriers*". Extended abstract included in Congress Proceedings.
  35. 10<sup>th</sup> Natural Gas Conversion Symposium, 2-7 March 2013, Doha (Qatar). Poster presentation: "*Low temperature methane reforming over Ni and Rh catalysts supported on lanthana modified ceria-zirconia*". Extended abstract included in Congress Proceedings.
  36. International Congress on Energy and Environment Engineering and Management, CIEEM, 17-19 July 2013, Lisbon (Portugal). Contribution: "*Characterization of new developed catalyst for natural gas and biogas steam reforming reaction*". Extended abstract included in Congress Proceedings.
  37. 5<sup>th</sup> World Hydrogen Technologies Convention WHTC 2013, Shanghai (China), 25-28 September 2013. Contribution: "*Development of a Multi-Fuelled Low-Temperature Steam Reformer for Hydrogen Production*". Extended abstract included in Congress Proceedings.
  38. A. Giaconia, L. Turchetti, G. Monteleone, B. Morico, G. Iaquaniello, K. Shabtai, M. Sheintuch, D. Boettge, J. Adler, V. Palma, S. Voutetakis, A. Lemonidou, M.C. Annesini, M. den Exter, H. Balzer: "Development of a solar-powered, fuel-flexible compact steam reformer: The CoMETHy project". PRES 2013, 16<sup>th</sup> Conference Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Congress Proceedings: Chemical Engineering Transactions, Volume 35, 2013, Pages 433-438 DOI: 10.3303/CET1335072; ISSN:2283-9216.
  39. L. Turchetti, G. Monteleone, A. Giaconia, S. Sau, V. Palma, F. Castaldo, A. Lemonidou, S.D. Angeli: "Time-on-stream stability of new catalysts for low-temperature steam reforming of biogas". 16<sup>th</sup> Conference Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Congress Proceedings: Chemical Engineering Transactions, Volume 35, 2013, Pages 685-690. DOI: 10.3303/CET1335114; ISSN:2283-9216.
  40. S.D. Angeli, G. Monteleone, A. Giaconia, A. Lemonidou: "Low temperature methane steam reforming: Catalytic activity and coke deposition study". 16<sup>th</sup> Conference Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction, Congress Proceedings: Chemical Engineering Transactions, Volume 35, 2013, Pages 1201-1206. DOI: 10.3303/CET1335200; ISSN:2283-9216.
  41. A. Giaconia, G. Monteleone, B. Morico, A. Salladini, K. Shabtai, M. Sheintuch, D. Boettge, J. Adler, V. Palma, S. Voutetakis, A. Lemonidou, M.C. Annesini, M. den Exter, H. Balzer, L. Turchetti: "Multi-fuelled Solar Steam Reforming for Pure Hydrogen Production Using Solar Salts as Heat Transfer Fluid", International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2014; Beijing (China), 16-19 September 2014. Oral presentation and Extended abstract included in Congress Proceedings: Energy Procedia, Vol. 69, 1 May 2015, Pages 1750-1758. DOI: 10.1016/j.egypro.2015.03.144; ISSN:1876-6102.
  42. A.C. Tizzoni, S. Sau, N. Corsaro, A. Giaconia, C. D'Ottavi, S. Licoccia: "Thermal fluids for CSP systems: Alkaline nitrates/nitrites thermodynamics modelling method", 21<sup>st</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2015, Cape Town (South Africa), 13-16 October 2015. Poster presentation and Extended abstract included in Congress Proceedings: AIP Conference Proceedings Volume 1734, 31 May 2016. DOI: 10.1063/1.4949098; ISSN:0094-243X; E-ISSN:1551-7616.
  43. A. Giaconia, F. Montagnino, F. Paredes, F. Donato, G. Caputo, D. Mazzei: "Co-generation and innovative heat storage systems in small-medium CSP plants for distributed energy production", 22<sup>nd</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2016, Abu Dhabi (United Arab Emirates), 11-14 October 2016. Poster presentation and Extended abstract included in Congress Proceedings: AIP Conference Proceedings Volume 1850, 27 June 2017. DOI: 10.1063/1.4984476; ISSN:0094-243X; E-ISSN:1551-7616.
  44. A. Giaconia, L. Turchetti, A. Ienna, D. Mazzei, B. Schiavo, O. Scialdone, G. Caputo, A. Galia: "Conceptual study of the coupling of a biorefinery process for hydrothermal liquefaction of microalgae with a concentrating solar power plant", 22<sup>nd</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2016, Abu Dhabi (United Arab Emirates), 11-14 October

2016. Extended abstract included in Congress Proceedings: AIP Conference Proceedings Volume 1850, 27 June 2017. DOI: 10.1063/1.4984464; ISSN: 0094243X.
45. T. Delise, A.C. Tizzoni, M. Ferrara, M., N. Corsaro, C. D'Ottavi, A. Giaconia, L. Turchetti, M.C. Annesini, M. Telling, S. Sau, S. Licoccia: "New solid phase of  $\text{KNO}_3$  -  $\text{NaNO}_3$  salt mixtures studied by neutron scattering and differential scanning calorimetry analysis", 23<sup>rd</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2017, Santiago (Chile), 26-29 September 2017. Extended abstract included in Congress Proceedings: AIP Conference Proceedings Volume 2033, 8 November 2018. DOI: 10.1063/1.5067090; ISSN: 0094243X.
  46. M.H. Ahmed, A. Giaconia, A.M.A. Amin. Effect of solar collector type on the absorption system performance. 6th International Conference on Renewable Energy Research and Applications, ICRERA 2017, San Diego (USA). Extended abstract included in Congress Proceedings: Volume 2017-January, 12 December 2017, Pages 304-309. DOI: 10.1109/DISTRA.2017.8191284; ISBN: 978-153862095-3.
  47. R. Liberatore, A. Giaconia, G. Petroni, G. Caputo, C. Felici, E. Giovannini, R. Branke, R. Muller, M. Karl, T. Fluri: "Analysis of a procedure for direct charging and melting of solar salts in a 14 MWh thermal energy storage tank", 24<sup>th</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2018, Casablanca (Morocco), 2-5 October 2018. AIP Conference Proceedings Volume 2126, 25 July 2019. DOI: 10.1063/1.5117739; ISSN: 094243X.
  48. R. Liberatore, A. Giaconia, G. Petroni, G. Caputo, C. Felici, E. Giovannini, M. Giorgetti, R. Branke, R. Muller, M. Karl, T. Fluri. Analysis of a procedure for direct charging and melting of solar salts in a 14 MWh thermal energy storage tank. 24<sup>th</sup> International Conference on Concentrating Solar Power and Chemical Energy Systems, SolarPACES 2018, Casablanca (Morocco). Extended abstract included in Congress Proceedings: AIP Conference Proceedings Volume 2126, 25 July 2019. Article number 200024. DOI: 10.1063/1.5117739; ISSN: 0094243X.