Fecha del CVA	04/03/2026

Parte A. DATOS PERSONALES

Nombre	Luis M		
Apellidos	Romeo		
Sexo	Hombre	Fecha de Nacimiento	[redacted]
DNI/NIE/Pasaporte	[redacted]		
URL Web			
Dirección Email	luismi@unizar.es		
Open Researcher and Contributor ID (ORCID)	0000-0001-7379-6159		

1. ACTIVIDAD INVESTIGADORA, DE TRANSFERENCIA E INTERCAMBIO DEL CONOCIMIENTO

1.1. PROYECTOS Y CONTRATOS DE INVESTIGACIÓN Y TRANSFERENCIA E INTERCAMBIO DEL CONOCIMIENTO

1.1.1. Proyectos

1 **Proyecto**. Descarbonización de la industria siderúrgica a partir de e-hidrógeno renovable, captura de CO2 y metanización. Ministerio de Economía, Industría y Competitividad. Begoña Peña. (Universidad de Zaragoza). 01/09/2022-01/09/2025.

2 **Proyecto**. Descarbonización de la industria siderúrgica mediante la utilización de hidrógeno verde y recirculación de CO2.. Ministerio de Economía, Industría y Competitividad. Pilar Lisbona. (Universidad de Zaragoza). 01/09/2022-01/09/2024.

3 **Proyecto**. Mapeado, análisis y propuestas de circularidad en las cadenas de valor de la Electrónica y TIC, y las Baterías y Vehículos en Aragón. (CIRCLEMAP-ELECBAT-AR) (DGA). Diputación General de Aragón. (Universidad de Zaragoza). 01/09/2021-30/09/2023.

4 **Proyecto**. AlSiCal - Towards sustainable mineral and metal industry: ZERO Bauxite Residue and ZERO CO2 from co-production of Alumina, Silica and precipitated Calcium carbonate by the Aranda-Mastin technology. Unión Europea. (Universidad de Zaragoza). 01/09/2019-31/08/2023.

5 **Proyecto**. DISIPO. Decarbonisation of carbon-intensive industries (Iron and Steel Industries) through Power to gas and Oxy-fuel combustion. Unión Europea. (Universidad de Zaragoza). 01/01/2021-30/06/2023.

6 **Proyecto**. REMEDY. Metano renovable para la descarbonización del sector industrial (UZ2020-TEC-006). Universidad de Zaragoza. Luis M Romeo. (Universidad de Zaragoza). 01/10/2020-30/09/2021.

7 **Proyecto**. SOCRATCES - SOlar Calcium-looping integRAtion for Thermo-Chemical Energy Storage. Unión Europea. (Universidad de Zaragoza). 01/01/2018-30/09/2021.

8 **Proyecto**. MERCURIA - Metano a partir de Energías Renovables y Captura y Utilización de CO2 en el sector Residencial, Industrial y Automovilístico (ENE2016-76850-R). Ministerio de Economía, Industría y Competitividad. Luis M Romeo. (Universidad de Zaragoza). 01/01/2017-30/12/2020.

9 **Proyecto**. ALEN CO2 - Almacenamiento de energía renovable con CO2 reciclado mediante oxicombustión y power to gas. Diputación General de Aragón. (Universidad de Zaragoza). 15/09/2018-30/11/2020.

1.1.2. Contratos

1 **Contrato**. Development, Evaluation and Optimization of Sustainable Power-to-gas Schemes for Energy-intensive Industrial Metal Manufacturing Processes Khalifa University. LM Romeo. 01/06/2020-01/06/2023.

2 **Contrato**. Almacenamiento de energía (power to gas) e integración de sistemas de captura de CO2 en industria química con producción de hidrógeno ERCROS. LM Romeo. 2015-01/12/2015.

3 **Contrato**. Estudio de la integración de sistemas de captura de CO2 en centrales térmicas en condiciones de flexibilidad de operación Fundación Iberdrola. Yolanda Lara. 2015-01/01/2016.

1.2. RESULTADOS Y DIFUSIÓN DE LA ACTIVIDAD INVESTIGADORA Y DE TRANSFERENCIA E INTERCAMBIO DE CONOCIMIENTO

1.2.1. Actividad investigadora

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

1 **Artículo científico**. 2023. A comparative life cycle assessment for solar integration in CO2 capture utilized in a downstream urea synthesis plant.Journal of CO2 Utilization. 74, pp.102534.
2 **Artículo científico**. 2023. High oxygen and SNG injection in blast furnace ironmaking with Power to Gas. Journal of Cleaner Production. 405, pp.137001.
3 **Artículo científico**. 2023. Integration of carbon capture technologies in blast furnace based steel making: A comprehensive and systematic review. Fuel. 336, pp.127074.
4 **Artículo científico**. 2023. Optimized Ca-looping thermochemical energy storage under dynamic operation for concentrated solar power. Journal of Energy Storage. 68, pp.107587.
5 **Artículo científico**. 2023. Power to gas and top gas recycling integration in an oxygen blast furnace steelmaking industry.Journal of CO2 Utilization. 78, pp.102634.
6 **Artículo científico**. 2023. Solar-driven Calcium Looping in Fluidized Beds for Thermochemical Energy Storage.Chemical Engineering Journal. 466, pp.142708.
7 **Artículo científico**. 2023. Technical and economic assessment of iron and steelmaking decarbonization via power to gas and amine scrubbing.Energy. 279, pp.127.
8 **Artículo científico**. 2023. The effects of energy consumption of alumina production in the environmental impacts using life cycle assessment.International Journal of Life Cycle Assessment.
9 **Artículo científico**. 2022. Exergoenvironmental analysis and thermoeconomic optimization of an industrial post-combustion CO2capture and utilization installation.Journal of CO_2 Utilization. Elsevier. 59, pp.101927.
10 **Artículo científico**. 2022. Integration of oxycombustion and microbial electrosynthesis for sustainable energy storage.Energy Conversion and Management. 269, pp.116002.
11 **Artículo científico**. 2022. Non-stoichiometric methanation as strategy to overcome the limitations of green hydrogen injection into the natural gas grid.Applied Energy. 309, pp.118462.
12 **Artículo científico**. 2022. Operation maps in calcium looping thermochemical energy storage for concentrating solar power plants.Journal of Energy Storage. 55, pp.105771.
13 **Artículo científico**. 2022. Synthetic natural gas production in a 1 kW reactor using Ni–Ce/Al2O3 and Ru–Ce/Al2O3: Kinetics, catalyst degradation and process design.Energy. Elsevier. 256, pp.124720.
14 **Artículo científico**. 2022. Thermal Energy Storage in Concentrating Solar Power Plants: A Review of European and North American R&D Projects.Energies. 15-22, pp.8570.
15 **Artículo científico**. 2021. A review on CO2 mitigation in the Iron and Steel industry through Power to X processes.Journal of CO_2 Utilization. Elsevier. 46, pp.101456.
16 **Artículo científico**. 2021. CO2 recycling in the iron and steel industry via power-to-gas and oxy-fuel combustion. Energies. 14-21, pp.7030.
17 **Artículo científico**. 2021. Design and operational performance maps of calcium looping thermochemical energy storage for concentrating solar power plants. Energy. Elsevier. 220, pp.119715.
18 **Artículo científico**. 2021. Lab-scale experimental tests of power to gas-oxycombustion hybridization: System design and preliminary results.Energy. Elsevier. 226, pp.120375.
19 **Artículo científico**. 2021. Modelling calcium looping at industrial scale for energy storage in concentrating solar power plants.Energy. Elsevier. 225, pp.120306.

20 **Artículo científico**. 2021. Process design and thermoeconomic evaluation of a CO2 liquefaction process driven by waste exhaust heat recovery for an industrial CO2 capture and utilization plant.Journal of Thermal Analysis and Calorimetry. Elsevier. 145, pp.1585-1597.

21 **Artículo científico**. 2021. Techno-economic assessment and optimization of a solar-assisted industrial post-combustion CO2 capture and utilization plant.Energy Reports. Elsevier. 7, pp.7390-7404.

22 **Artículo científico**. 2021. Techno-economic assessment of an industrial carbon capture hub sharing a cement rotary kiln as sorbent regenerator.International Journal of Greenhouse Gas Control. 112, pp.103524.

23 **Artículo científico**. 2021. Techno-economics optimization of H2 and CO2 compression for renewable energy storage and power-to-gas applications.Applied Sciences (Switzerland). 11-22, pp.10741.

24 **Artículo científico**. 2020. A comparative analysis of the efficiency penalty in power plants of different amine-based solvents for CO2 capture. Industrial & Engineering Chemistry Research. Elsevier.

25 **Artículo científico**. 2020. CO2 utilization via integration of an industrial post-combustion capture process with a urea plant: Process modelling and sensitivity analysis. Processes. MDPI.

26 **Artículo científico**. 2020. Calcium looping as chemical energy storage in concentrated solar power plants: Carbonator modelling and configuration assessment. Applied Thermal Engineering. Elsevier.

27 **Artículo científico**. 2020. Comprehensive thermodynamic and operational optimization of a solar-assisted LiBr/water absorption refrigeration system. Energy Reports. ELSEVIER.

28 **Artículo científico**. 2020. Design configurations to achieve an effective CO2 use and mitigation through power to gas. Journal of CO_2 Utilization. Elsevier.

29 **Artículo científico**. 2020. Energy consumption minimization for a solar lime calciner operating in a concentrated solar power plant for thermal energy storage.Renewable Energy. Elsevier.

30 **Artículo científico**. 2020. Improved Flexibility and Economics of Combined Cycles by Power to Gas. Frontiers in Energy Research. Elsevier.

31 **Artículo científico**. 2020. Methodology for dimensioning the socio-economic impact of power-to-gas technologies in a circular economy scenario. Applied Sciences (Switzerland). MDPI.

32 **Artículo científico**. 2020. Reducing cycling costs in coal fired power plants through Power to Hydrogen. International Journal of Hydrogen Energy. Elsevier.

33 **Artículo científico**. 2019. Avoiding partial load operation at coal-fired power plants by displacing nuclear power through Power to Gas. International Journal of Hydrogen Energy. Elsevier.

34 **Artículo científico**. 2019. Combined carbon capture cycles: An opportunity for size and energy penalty reduction. International Journal of Greenhouse Gas Control,. Elsevier. 88, pp.290-298.

35 **Artículo científico**. 2019. Renewable energy sources and power-to-gas aided cogeneration for non-residential buildings. Energy. Elsevier. 181, pp.226-238.

36 **Artículo científico**. 2019. Techno-economic feasibility of power to gas-oxyfuel boiler hybrid system under uncertainty. International Journal of Hydrogen Energy. 44-19, pp.9505-9516.

37 **Artículo científico**. 2018. Decision-making methodology for managing photovoltaic surplus electricity through Power to Gas: Combined heat and power in urban buildings. Applied Energy. Elsevier. 228, pp.1032-1045.

38 **Artículo científico**. 2018. Efficiency and energy analysis of power plants with amine? impregnated solid sorbents CO2 capture. Energy Technology.

39 **Artículo científico**. 2018. Technical and economic feasibility evaluation of calcium looping with no CO2 recirculation. Chemical Engineering Journal. 335, pp.763-773.

40 **Artículo científico**. 2018. The mOxy-CaL process: Integration of membrane separation, partial oxy-combustion and calcium looping for CO2 capture.Chemical Engineering Transactions,. 70, pp.643-648.

41 **Artículo científico**. 2018. Thermoeconomic analysis and optimization of post?combustion CO2 recovery unit utilizing absorption refrigeration system for a natural?gas?fired power plant. Environmental Progress & Sustainable Energy.

42 **Artículo científico**. Espatolero, S.; Romeo, L.M.; Escudero, A.I.; Kuivalainen, R.2017. An operational approach for the designing of an energy integrated oxy-fuel CFB power plant. International Journal of Greenhouse Gas Control. 64, pp.204-211.

43 **Artículo científico**. Bailera, M.; Kezibri, N.; Romeo, L.M.; Espatolero, S.; Lisbona, P.; Bouallou, C.2017. Future applications of hydrogen production and CO2 utilization for energy storage: Hybrid Power to Gas-Oxycombustion power plants. International Journal of Hydrogen Energy. 42-19, pp.13625-13632.

44 **Artículo científico**. Bailera, M.; Lisbona, P.; Romeo, L.M.; Espatolero, S.2017. Power to Gas projects review: Lab, pilot and demo plants for storing renewable energy and CO<inf>2</inf>. Renewable and Sustainable Energy Reviews. 69, pp.292-312.

45 **Artículo científico**. Bailera, M.; Espatolero, S.; Lisbona, P.; Romeo, L.M.2017. Power to gas-electrochemical industry hybrid systems: A case study. Applied Energy. 202, pp.435-446.

46 **Artículo científico**. Ortiz, C.; Valverde, J.M.; Chacartegui, R.; Benítez-Guerrero, M.; Perejón, A.; Romeo, L.M.2017. The Oxy-CaL process: A novel CO<inf>2</inf> capture system by integrating partial oxy-combustion with the Calcium-Looping process. Applied Energy. 196, pp.1-17.

47 **Artículo científico**. Telesca, A.; Marroccoli, M.; Ibris, N.; Lupiáñez, C.; Díez, L.I.; Romeo, L.M.; Montagnaro, F.2017. Use of oxyfuel combustion ash for the production of blended cements: A synergetic solution toward reduction of CO<inf>2</inf> emissions. Fuel Processing Technology. 156, pp.211-220.

48 **Artículo científico**. X Qiao; P Lisbona; X Guo; Y Lara; LM Romeo. 2016. Energy Assessment of Ethanol-Enhanced Steam Reforming by Means of Li4SiO4 Carbon Capture. ENERGY & FUELS. 30-3, pp.1879-1886.

49 **Artículo científico**. Lara, Y.; Martínez, A.; Lisbona, P.; Romeo, L.M.2016. Heat integration of alternative Ca-looping configurations for CO<inf>2</inf> capture. Energy. 116, pp.956-962.

50 **Artículo científico**. Ai Escudero; S Espatolero; LM Romeo; Y Lara; C Paufique; AL Lesort; M Liszka; JM Valverde. 2016. Minimization of CO2 capture energy penalty in second generation oxy-fuel power plants. APPLIED THERMAL ENGINEERING. ELSEVIER. 103, pp.274-281.

51 **Artículo científico**. Ana I Escudero; Sergio Espatolero; Luis M Romeo. 2016. Oxy?combustion power plant integration in an oil refinery to reduce CO2 emissions. INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL. ELSEVIER. 45, pp.118-129.

52 **Artículo científico**. M Bailera; P Lisbona; LM Romeo; S Espatolero. 2016. Power to Gas–biomass oxycombustion hybrid system: Energy integration and potential applications. APPLIED ENERGY. ELSEVIER.

53 **Artículo científico**. A Perejón; LM Romeo; Y Lara; P Lisbona; A Martínez; JM Valverde. 2016. The Calcium?Looping technology for CO2 capture: On the important roles of energy integration and sorbent behavior. APPLIED ENERGY. ELSEVIER. 162, pp.787-807.

54 **Artículo científico**. LI Díez; C Lupiañez; I Guedea; I Bolea; LM Romeo. 2015. Anthracite oxy?combustion characteristics in a 90kWth fluidized bed reactor. FUEL PROCESSING TECHNOLOGY. ELSEVIER. 139, pp.196-203.

55 **Artículo científico**. A Martínez; P Lisbona; Y Lara; LM Romeo. 2015. Energy Intensity Reduction of Ca?Looping CO2 Capture by Applying Mixing Loop Seals and Cyclonic Systems. INTERNATIONAL JOURNAL OF CHEMICAL REACTOR ENGINEERING. DE GRUYTER. 13-4, pp.523-532.

56 **Artículo científico**. R Shirmohammadi; B Ghorbani; M Hamedi; MH Hamedi; LM Romeo. 2015. Optimization of mixed refrigerant systems in low temperature applications by means of group method of data handling (GMDH). JOURNAL OF NATURAL GAS SCIENCE AND ENGINEERING. ELSEVIER. 26, pp.303-312.

57 **Artículo científico**. M Bailera; P Lisbona; LM Romeo;. 2015. Power to gas? oxyfuel boiler hybrid systems. INTERNATIONAL JOURNAL OF HYDROGEN ENERGY. ELSEVIER. 40-32, pp.10168-10175.

58 **Artículo científico**. Y. Lara; P. Lisbona; A. Martínez; L. M. Romeo. 2014. A systematic approach for high temperature looping cycles integration. FUEL. 127, pp.4-12. ISSN 0013-936X.

59 **Artículo científico**. I. Bolea; A. Checa; L. M. Romeo. 2014. Assessment of the integration of CO2 capture technology into oil–sand extraction operations. INTERNATIONAL JOURNAL OF ENERGY AND ENVIRONMENTAL ENGINEERING. Springer. 5-4, pp.323-332. ISSN 2008-9163.

60 **Artículo científico**. S. Espatolero; L. M. Romeo; C. Cortés. 2014. Efficiency improvement strategies for the feedwater heaters network designing in supercritical coal-fired power plants. APPLIED THERMAL ENGINEERING. 73, pp.447-458. ISSN 1359-4311.

61 **Artículo científico**. A. Martínez; Y. Lara; P. Lisbona; L. M. Romeo. 2014. Operation of a Mixing Seal Valve in Calcium Looping for CO2 Capture. ENERGY & FUELS. 28-3, pp.2059-2068. ISSN 0887-0624.

62 **Capítulo de libro**. 2020. Advances in Carbon Capture. Chapter 27. Integration of CO2 capture and conversion. Elsevier. pp.15-38.

63 **Capítulo de libro**. 2017. Materials and Process Systems far CO2 Capture: Modelling, Design, Control and Integration. Energy integration of processes for solid looping CO2 capture systems. Chapter 23. John Wiley & Sons, Ltd.

64 **Capítulo de libro**. 2015. Calcium and chemical looping technology for power generation and carbon dioxide (CO2) capture. Energy and exergy pertaining to solid looping cycles, Chapter 2. Woodhead Publishing Series in Energy.. pp.15-38.

65 **Capítulo de libro**. P. Lisbona; Y. Lara; A. Martínez; L.M. Romeo. 2014. Recent Technologies in Capture of CO2. Calcium Looping Technology for CO2 Capture. Chapter 5. Bentham Science Publishers Ltd.. pp.119-146. ISBN 978-1-60805-925-6.

66 **Capítulo de libro**. I Guedea; I Bolea; C Lupiañez; L.M. Romeo; L.I. Díez. 2014. Recent Technologies in Capture of CO2. Oxy-Fuel Combustion in Fluidized Beds. Chapter 1. Bentham Science Publishers Ltd.. pp.3-39. ISBN 978-1-60805-925-6.

67 **Libro o monografía científica**. 2020. Energy Storage: Hybridization of Power-to-Gas technology and CCS. Energy Storage: Hybridization of Power-to-Gas technology and CCS. Springer.

68 **Congreso.** CO2 capture in alumina production. Energy and economic implications.. XIII National and IV International Conference on Engineering Thermodynamics (13CNIT-2023). 2023.

69 **Congreso.** Decarbonization of blast furnace steelmaking through Power to Gas: from direct H2 injection to full blast furnace gas methanation.. XIII National and IV International Conference on Engineering Thermodynamics (13CNIT-2023). 2023.

70 **Congreso.** Carbon recycling in ironmaking through power to gas and oxygen blast furnaces.. XII National and III International Conference on Engineering Thermodynamics (12CNIT-2022),. 2022.

71 **Congreso.** Cost Allocation in CCU. Application to Power to Gas with H2 and CO2 Utilization.. 16th International Conference on Greenhouse Gas Control Technologies (GHGT-16),. 2022.

72 **Congreso.** Decarbonization of ironmaking through power to gas and oxy-fuel combustion.. 16th International Conference on Greenhouse Gas Control Technologies (GHGT-16),. 2022.

73 **Congreso.** Hydrogen and carbon utilization through Power to Gas. Experimental activities for carbon recycling and renewable H2 injection into the grid.. XII National and III International Conference on Engineering Thermodynamics (12CNIT-2022),. 2022.

74 **Congreso.** Technical viability of different Power to Gas integration configurations in a BF-BOF iron and steel plant.. 16th International Conference on Greenhouse Gas Control Technologies (GHGT-16),. 2022.

75 **Congreso.** Technical viability of different Power to Gas integration configurations in a BF-BOF iron and steel plant.. XII National and III International Conference on Engineering Thermodynamics (12CNIT-2022),. 2022.

76 **Congreso.** Techno-economic viability of different Power to Gas integration configurations in a BF-BOF iron and steel plant.. The 5th European Gas Technology Conference (EGATEC2022),. 2022.
77 **Congreso.** CO2 reutilization in residential sector through Power to Gas and Oxyfuel combustion.. 15th Greenhouse Gas Control Technologies Conference,. 2021.
78 **Congreso.** Carbon utilization through Power to Gas and Oxyfuel combustion hybridization with recycled CO2: design and preliminary result.. 15th Greenhouse Gas Control Technologies Conference,. 2021.
79 **Congreso.** Decarbonisation of carbon-intensive industries (Iron and Steel Industries) through Power to gas and Oxy-fuel combustion.. The First Symposium on Carbon Ultimate Utilization Technologies for the Global Environment (CUUTE-1),. 2021.
80 **Congreso.** Improvement of Performance of Fluidized Bed Calcium Looping for Thermochemical Solar Energy Storage: Modelling and Experiments. 10th European Combustion Meeting. 2021.
81 **Congreso.** Technical Feasibility Analysis of a Negative Emissions BECCS System for a Livestock Waste Treatment Plant.. 15th Greenhouse Gas Control Technologies Conference,. 2021.
82 **Congreso.** Techno-economic Feasibility Study of Cement Plants as Reference Facilities for Centralized CO2 Capture in Industrial Sites.. 15th Greenhouse Gas Control Technologies Conference,. 2021.
83 **Congreso.** Lab-scale experimental tests of Power to Gas-Oxycombustion hybridization: system design and preliminary results. 33st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2020.
84 **Congreso.** Solar calcium looping energy storage: Preliminary comparison between pilot and large scale. 33st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2020.
85 **Congreso.** Energy consumption minimization for a solar lime calciner operating in a concentrated solar power plant for thermal energy storage. 32st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2019. Polonia.
86 **Congreso.** On the modelling of a lime carbonator operating in a Concentrated Solar Power (CSP) plant for energy storage. 32st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2019. Polonia.
87 **Congreso.** Analysis of the influence of Power-to-Gas systems in cyclic performance of fossil fuel power plants. 31st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2018. Portugal.
88 **Congreso.** CO2 recycling for Oxy-Power-to-Gas and Oxy-Power-to-Methanol. Clean alternatives for energy storage. 31st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2018. Portugal.
89 **Congreso.** Renewable energy and Power-to-gas aided cogeneration for residential uses. 31st International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems, ECOS 2018. 2018. Portugal.
90 **Congreso.** CO2 recycling based on 'Power to Gas-Carbon capture' hybrid systems. 9th Trondheim Conference on CO2 Capture, Transport and Storage. 2017. Noruega.
91 **Congreso.** Energy integration with a topping and a bottoming CO2 capture system. 9th Trondheim Conference on CO2 Capture, Transport and Storage. 2017. Noruega.
92 **Congreso.** Exploring the integration of the power to gas technologies and the sustainable transport. 7th International Conference on ENERGY & SUSTAINABILITY. 2017. España.
93 **Congreso.** Lab-scale research on Power to Gas-Oxycombustion hybridization: system design and economic evaluation. 12th Conference on Sustainable Development of Energy, Water and Environment Systems. 2017. Croacia.
94 **Congreso.** Power to Gas in Aragón. Workshop ELYNTEGRATION. Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón. Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón. 2017. España.

95 **Congreso.** Amine impregnated solid sorbents CO2 capture: Hydrodynamic model of interconnected fluidized beds configuration. 1st International Conference on Bioenergy and Climate Change. 2016. España.

96 **Congreso.** Amine-impregnated Alumina Solid Sorbents for CO2 capture. Lessons learned. 13th International Conference on Greenhouse Gas Control Technologies. 2016. Suiza.

97 **Congreso.** Energy integration of high and low temperature solid sorbents for CO2 capture. 13th International Conference on Greenhouse Gas Control Technologies. 2016. Suiza.

98 **Congreso.** Future applications of hydrogen production and CO2 capture for energy storage. 21st World Hydrogen Energy Conference. 2016. España.

99 **Congreso.** On the flexibility of coal-fired power plants with integrated Ca-looping CO2 capture process. 13th International Conference on Greenhouse Gas Control Technologies. 2016. Suiza.

100 **Congreso.** Optimization of oxygen-based CFBC technology with CO2 capture. 13th International Conference on Greenhouse Gas Control Technologies. 2016. Suiza.

101 **Congreso.** Oxyfuel Combustion Residues as Supplementary Cementitious Materials for the Production of Blended Portland Cements. 4th International Conference on Sustainability Construction Materials and Technologies. 2016. Estados Unidos de América.

102 **Congreso.** Power to Gas technology implementation in the Aragonese Pyrenees. 21st World Hydrogen Energy Conference. 2016. España.

103 **Congreso.** Power to Gas technology under Spanish future energy scenario. 13th International Conference on Greenhouse Gas Control Technologies. 2016. Suiza.

104 **Congreso.** Power-to-Gas and carbon capture integration strategies in a an electrochemical industry. 3rd International Conference on Renewable Energy Gas Technology, REGATEC. 2016. Suecia.

105 **Congreso.** Reducing energy penalty of oxycombustion through power-to-gas hybridization. 1st International Conference on Bioenergy and Climate Change. 2016. España.

106 **Congreso.** Amine-impregnated Alumina Solid Sorbent for CO2 Capture (ASC2). The 7th International Conference on Clean Coal Technologies CCT 2015. 2015. Polonia.

107 **Congreso.** Analysis of power-to-gas technology with oxyfuel combustion integration. 2nd International Conference on Renewable Energy Gas Technology, REGATEC. 2015. España.

108 **Congreso.** Energy Assessment of Ethanol Enhanced Steam Reforming by Means of Li4SiO4 Carbon Capture. 5th Sino-Australian Symposium on Advanced Coal and Biomass Utilisation Technologies. 2015. China.

109 **Congreso.** External heat integration of energetically optimized Ca-looping configurations. 6th High Temperature Solid Looping Cycles Network Meeting. 2015. Italia.

110 **Congreso.** Heat integration of an oxy-combustion power plant: minimization of the CO2 capture process energy penalty. The 7th International Conference on Clean Coal Technologies CCT 2015. 2015. Polonia.

111 **Congreso.** Hydrodynamic feasibility of amine-impregnated alumina CO2 capture process by means of cold flow model investigation. 22nd International Conference on Fluidized Bed Conversion. 2015. Reino Unido.

112 **Congreso.** Optimisation of oxygen-based CFBC technology with CO2 capture. 22nd International Conference on Fluidized Bed Conversion. 2015. Suecia.

113 **Congreso.** A. Martínez; P. Lisbona; Y. Lara; L. M Romeo. Energy intensity reduction of Ca-looping CO2 capture by applying mixing loop seals and cyclonic systems. 13th ANIMP's Multiphase Flow in Industrial Plants International Conference. 2014. Italia.

114 **Congreso.** Energy savings in CCS. European Carbon Capture & Storage Research & Development Workshop (ECCSRD). 2014. Reino Unido.

115 **Congreso.** P. Lisbona; L. M Romeo; J. M. Alarcón; A. López; R. Espinosa; M. Muñoz. Sistema de prevención contra incendios por dispersión de CO2 desplegable a distancia. II Congreso Nacional de I+D en Defensa y Seguridad. 2014. España.

1.3. ESTANCIAS EN UNIVERSIDADES Y CENTROS DE INVESTIGACIÓN

1.3.1. Estancias

1 **Estancia:** Cranfield University. 27/06/2017-04/07/2017.

2. ACTIVIDAD DOCENTE

2.2. EVALUACIÓN DE LA CALIDAD DOCENTE E INNOVACIÓN

2.2.3. Formación para la mejora docente recibida

1 **Curso/seminario:** English for Teaching Purposes (ETP) Stage 1: CLIC@Unizar. (30 horas). 18/10/2023.
2 **Curso/seminario:** English for Teaching Purposes (ETP) Stage 0: CLIC@Unizar. (30 horas). 01/09/2021.
3 **Curso/seminario:** Horizonte 2020: Programa Marco de Investigación de la unión Europea. (2 horas). 19/11/2015.

3. LIDERAZGO

3.1. DIRECCIÓN DE EQUIPOS DOCENTES Y DE INVESTIGACIÓN

1 **Energía y CO2:** Universidad de Zaragoza. 01/01/2023.
2 **Energía y CO2:** Universidad de Zaragoza. 01/01/2020.
3 **Energía y CO2:** Universidad de Zaragoza. 01/01/2018.
4 **Socioeconomía de la Energía y la Sostenibilidad:** Universidad de Zaragoza. 01/01/2016.

3.2. DIRECCIÓN DE TESIS DOCTORALES Y TRABAJOS FIN DE MASTER

1 Operational optimization of Calcium Looping-based thermal energy storage system in concentrated solar power plants.. Universidad de Zaragoza. 19/07/2023.
2 Innovative proposals for energy storage and CO2 capture hybrid systems based on Power to Gas. Analysis and efficiency optimization. Universidad de Zaragoza. 15/12/2017.
3 **Tesis Doctoral:** Análisis de las emisiones de SO2 y NOx producidas en lecho fluidizado burbujeante bajo condiciones de oxicombustión. Universidad de Zaragoza. 12/11/2014. Mención Calidad .Sobresaliente "cum laude".
4 **Tesis Doctoral:** Energy intensity reduction in the calcium looping cycle for CO2 capture by internal heat integration. Universidad de Zaragoza. 11/04/2014. Mención Calidad .Sobresaliente "cum laude".
5 **Tesis Doctoral:** Optimization of energy use from carbonation-calcination cycle for CO2 capture. Universidad de Zaragoza. 11/04/2014. Mención Calidad .Sobresaliente "cum laude".

3.3. LIDERAZGO EN EL ÁMBITO DE LA DIRECCIÓN Y GESTIÓN UNIVERSITARIA Y CIENTÍFICA

1 **Catedrático de Universidad:** Universidad de Zaragoza. 2017- actual.

3.4. RECONOCIMIENTO Y RESPONSABILIDAD EN ORGANIZACIONES CIENTÍFICAS Y COMITÉS CIENTÍFICOS-TÉCNICOS

1 **Guest Associate Editor in Process and Energy Systems Engineering Journal. Advances in Power-to-X: Processes, Systems, and Deployment:** Frontiers in Energy Research. 11/2019-20/08/2020
2 **Editorial Board of International Journal of Energy and Environmental Engineering: IJEEE:** Springer Open Access. 11/2010-20/08/2020