

CURRICULUM VITAE ABREVIADO (CVA)
Fecha del CVA

20/11/2025

Parte A. DATOS PERSONALES

Nombre	Luis		
Apellidos	Pérez Villarejo		
Sexo (*)	H	Open Researcher and Contributor ID (ORCID) (*)	0000-0002-6912-9844

* *datos obligatorios*
A.1. Situación profesional actual

Puesto	Associate Professor
Fecha inicio	27/11/2019
Organismo/ Institución	University of Jaén
Departamento/ Centro	Dept. Chemicatry, Environmental and Materials Engineering
País	Spain
Palabras clave	nanomaterials, ceramic materials, binders, composite materials, alkali-activated materials, circular economy, waste recovery, molecularly imprinted membranes and polymers, selective separation, metal organic frameworks, adsorption, graphene-based materials, mullite

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora, de acuerdo con lo indicado en la convocatoria, indicar meses totales)

Periodo	Puesto/ Institución/ País / Motivo interrupción
27/11/2009-30/09/2013	Assistant Professor/Spain/Promotion to Prof. Assistant Dr.
01/10/2013-27/09/2015	Prof. Assistant Dr./Spain/Promotion to Lecturer
28/09/2015-26/11/2019	Lecturer /Spain/Promotion to Associate Professor
27/11/2019-October 2024	Associate Professor/Spain
October 2024	accreditation for a full (chair) professor

A.3. Formación Académica

Grado/Master/Tesis	Universidad/País	Año
Degree on Chemistry	University of de Jaén/ Spain	2002
Máster in Science and Technology of New Materials	University of Seville/Spain	2011
Ph. D. Degree	University of Jaén/ Spain	2013
Materials Enginnering	University of Almería/ Spain	2015

Parte B. RESUMEN DEL CV (máx. 5.000 caracteres, incluyendo espacios)

Bachelor's degree in Chemistry from the University of Jaén (Spain, July 2002), Master's degree in Science and Technology of New Materials from the University of Seville (Spain, December 2013) and Doctorate with international mention, graded Cum Laude by the University of Jaén (Spain, April 2013). Materials Engineer, University of Almería (Spain, September 2018). During the 2008/09 academic year, he worked as a substitute lecturer in the Department of Chemical, Environmental and Materials Engineering, Materials Science and Metallurgical Engineering at the University of Jaén. On 27/11/2009, I began working as an Assistant Professor in the same Department. I completed my pre-doctoral training during the 2010-2011 academic year,

spending three months conducting research at the Materials and Metallurgy Laboratory of the Department of Chemical Engineering at the University of Patras (Greece). Currently a tenured university professor since November 2019.

My scientific activity has focused on Materials Science and Technology, specifically on improving conventional technologies to obtain environmentally friendly industrial products. In particular, I research the development of new sustainable materials through the recovery of industrial waste and biomass for the construction sector and catalytic applications, by characterising raw materials, determining the properties of ceramic materials and innovating products. The following topics are being studied: Energy efficiency in industrial processing methods, which involves low-carbon materials and the reuse of waste; New hydraulic binder-type geopolymers and chemically activated inorganic materials; Waste recycling for the production of new materials, as well as the environmental applications derived from these ceramic materials and geopolymers, such as wastewater treatment. In addition to this main topic, there are other secondary topics on which I work intensively: formulation of belite-rich cements, synthesis of nanomaterials, composite materials, and ceramic foams for chemical catalysis. Therefore, my research activity has been channelled through participation in 14 competitive publicly funded research projects (in 2 of which I have acted as principal investigator), as well as 16 research contracts with private companies. The results of this work have led to the publication of 96 scientific papers, most of which are indexed in the first and second quartiles of the ISI, 15 book chapters, 2 patents, and around 100 contributions to national and international scientific conferences (h-index = 28 (Scopus)). Over the last five years, I have supervised three doctoral theses (and two others are currently in progress), contributing to the development of the next generation of scientists.

In addition, I have extensive experience in evaluating research projects for the Coordination and Evaluation Sub-Directorate of the State Research Agency (AEI) for 3 years, 14 projects from the Knowledge Generation call (Ministry of Science and Technology) in the 2020, 2021 and 2022 calls, and Pre-doctoral PIF Projects at the University of the Basque Country, evaluator of European projects in the InnovFund-SSC-2020 call (CINEA), the National Agency for Science and Technology of Argentina (2020) and the Metropolitan Technological University of Chile (2023); Research Projects in Colombia, Peru, Argentina and the Republic of Kazakhstan, as well as the Certification, Inspection and Verification Entity (EQA). I have also participated in the evaluation of pre-doctoral contracts at the University of the Basque Country. I have editorial experience as associate editor of the journal Materials and Reviews on Advanced Materials Science, the special issue 'Recent Progress in Sustainable Clay Ceramics' in Materials, the special issue VSI: GeoMaterials in Materials Letters, Journal of Physics: Conference Series, and the book Ceramics Materials Ceramic Materials Synthesis, Characterisation, Applications and Recycling. IntechOpen.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

Most important publications in peer-reviewed books and journals and conferences

1. Y. Ettahiri, L. Bouna, A. Brahim, A. Benlhachemni, B. Bakiz, P.J. Sánchez-Soto, D. Eliche-Quesada, L. Pérez-Villarejo, (2024), Synthesis and characterization of porous and photocatalytic geopolymers based on natural clay: Enhanced properties and efficient Rhodamine B decomposition, Applied Materials Today, 36, 102048.
2. Y. Ettahiri, A. Bouddouch, B. Akhasassi, A. Khali, L. Bouna, A. Benlhachemni, L. Pérez-Villarejo, (2025), Optimized porous alkali-activated material for superior dye removal: synthesis and performance analysis, Materials Advances, 6, 2435-2447.
3. Y. Ettahiri, D.M. Samuel, L. Bouna, A. Khali, A. Ayoub, A. Benlhachemni, L. Pérez-Villarejo, W.M. Kriven, (2023), Comparative study of physicochemical properties of geopolymers prepared by four Moroccan natural clays, Journal of Building Engineering, 80, 108021.
4. Y. Ettahiri, B. Bouargane, K. Fritah, R.M. Novais, L. Pérez-Villarejo (Corresponding author), nº de autores 9, posición (5/9), (2023), A state-of-art review of recent advances in porous geopolymers: Applications in adsorption of inorganic and organic contaminants in water, Construction and Building Materials, 395, 132269.
5. I.M. El-Kattan, M.S. Saif, M.O.R. El-Hariri, A.H. Elgandy, L. Pérez-Villarejo, D. Eliche-Quesada, (2023), Assessing the individual impact of magnesia and titania nanoparticles on the performance of alkali-activated slag mortars, Construction and Building Materials, 365, 130103.
6. J.M. Moreno-Maroto, P. Delgado-Plana, R. Cabezas-Rodríguez, R. Mejía de Gutiérrez, D. Eliche-Quesada, L. Pérez-Villarejo, R.J. Galán-Arboledas, S. Bueno, (2022), Alkaline

activation of high-crystalline low-Al₂O₃ Construction and Demolition Wastes to obtain geopolymers, *Journal of Cleaner Production*, 330, 129770.

7. L. Hejji, A. Azzouz, L. Pérez-Villarejo, E. Castro, B. Souhail, E. Rodríguez-Castellón, (2023), Fe₃O₄@UiO-66-NH₂ based on magnetic solid phase extraction for determination of organic UV filters in environmental water samples, *Chemosphere*, 341, 140090.

8. D. Eliche-Quesada, A. Calero-Rodríguez, E. Bonet-Martínez, L. Pérez-Villarejo, P. J. Sánchez-Soto, (2021), Geopolymers made from metakaolin sources, partially replaced by Spanish clay and biomass bottom ash, *Journal of Building Engineering*, 40, 102761.

9. M.A. Gómez-Casero, L. Pérez-Villarejo, E. Castro, D. Eliche Quesada, (2021), Effect of steel slag and curing temperature on the improvement in technological properties of biomass bottom ash based alkali-activated materials, *Construction and Building Materials*, 302, 124205.

10. L. Hejji, Y.A.E. Ali, A. Azzouz, N. Raza, L. Pérez-Villarejo, S.K. Kailasa, (2024), *Journal of Water Process Engineering*, In Press.

11. D. Eliche-Quesada, S. Ruiz-Molina, L. Pérez-Villarejo, E. Castro, P.J. Sánchez-Soto, (2020), Dust filter of secondary aluminium industry as raw material of geopolymer foams, *Journal of Building Materials*, 32, 101656.

C.1. Congress

1. Invited Keynote: Luis Pérez Villarejo, Title: Waste in the 'new' cement and geopolymers industry as a boost to the Circular Economy, 5th Ph.D. Summer School and Executive Training on Solid Waste Management, 19-20 June 2023, Chania (Greece).

2. Conference: L. Pérez-Villarejo, J.S. Bueno Rodríguez, D. Eliche Quesada, Circular Economy in Ceramic Production: Examples, 15th International Congress of Ceramics (CIMTEC), 20-25 June 2022, Perugia (Italy).

3. Oral communication: D. Eliche Quesada, F. Andrés Castro, M.A. Gómez Casero, L. Pérez Villarejo, J. Bueno Rodríguez, Title: Olive pomace ash as an alternative alkaline activator of electric arc Steel slags in the manufacture of alkaline activate cements, 15th International Ceramic Congress (CIMTEC), 20-25 June 2022, Perugia (Italy).

4. Oral communication: P. Delgado Plana, S. Bueno Rodríguez, L. Pérez Villarejo, D. Eliche-Quesada. Title: One-part geopolymers from spent filtering earths using alternative activators from waste glass. An example of circular economy, 10th International Conference on Sustainable solid waste Management, 21-24 June 2023, Chania (Greece).

5. Invited Lecture: L. Pérez-Villarejo. Title: Alkaline activated cementitious materials: Applying the circular economy. IV Conference of Young Scientists in Construction Materials. 27-28 November 2023, Carlos III University of Madrid.

6. Invited Lecture R. Vico-Lujano, L. Pérez-Villarejo, P. Hidalgo-Torrano. Título: The potential of Spanish biomass ashes in the cement industry and their impact on materials for additive manufacturing. V Jornadas de Jóvenes Científicos en Materiales de Construcción. 27-28 noviembre de 2023, Universidad Carlos III de Madrid.

C.2. Projects or research topics

1. Ref.: PID2020-115161RB-I00, Title: Applying the circular economy in the development of new alkaline-activated hydraulic binders with a low carbon footprint for construction solutions (CongActiva). Funding entity and call: Ministry of Science and Innovation, R&D&I projects, state Programme for the generation of knowledge and scientific and technological strengthening of the R&D&I system. Call 2020. Principal Investigator: Dolores Eliche Quesada (University of Jaén), Start/end date: 01/09/2021-31/08/2024, Amount: 108,900.00 €, Type of participation: Researcher.

2. P18-RT-3504, Geocircula: Economía circular en la fabricación de nuevos composites geopoliméricos: hacia el objetivo de cero residuos, Consejería de Economía, Conocimiento, Empresas y Universidad, Subvenciones en régimen de concurrencia competitiva de ayudas para la realización de proyectos de I+D+I (PAIDI 2020), 2020, Dolores Eliche Quesada/ **Luis Pérez Villarejo**, 01/11/2019-31/10/2020, 102.268,00 €, **Co-Principal Investigator**.

3. 1157072, Geo4build: Geopolymers and by-products for a circular economy in the field of construction, Ministry of Economy, Knowledge, Enterprise and University, Subvenciones en régimen de competencia competitiva en relación con la convocatoria de 2017 de ayudas para actividades de transferencia de conocimiento entre agentes de El sistema andaluz de conocimiento y el tejido productivo, 2020, Luis Pérez Villarejo, 01/11/2019-30/06/2021, 55.770 €, **Principal Investigator**.

4. MAT2017-88097-R, Development and characterisation of new geopolymeric composites from olive industry waste. Towards a sustainable construction (Geopoil), Agencia Estatal de Investigación, Ministerio de Economía, Industria y Competitividad, Proyectos de Excelencia y Proyectos Reto, 2017, Dolores Eliche Quesada (University of Jaén), 01/01/2018-01/09/2021, 109.000 €, Researcher.

5. M.1.B.B.TA_000602, Catalytic supports obtained by the geopolymerisation of RCDs for the

transformation of CO₂ into products with energy applications (CATGEOCO₂). Proyectos de Investigación Aplicada del Plan Operativo de Investigación y Transferencia del Conocimiento de la Universidad de Jaén 2023, Programa Operativo FEDER Andalucía 2021-2027, Dolores Eliche Quesada (Universidad de Jaén), 01/09/2024-01/09/2026, 30.000,00 €, Researcher

6. PID2024-159032OB-C21, ACTIVADSORBE. New alkaline-activated materials with controlled porosity and rheological control for Additive manufacturing. Funding entity and call: Agencia Estatal de Investigación. Ministerio de Ciencia, innovación y Universidades. Call 2024. Principal Investigator: **Luis Pérez Villarejo**, Start/end date: 01/09/2025-31/08/2029, Amount: 166,250.00 €, Type of participation: **Principal Investigator**

Participation in technology/knowledge transfer activities and exploitation of results

1. Patent: L. Pérez Villarejo, D. Eliche Quesada, B. Carrasco Hurtado, S. Martínez Martínez, E. Garzón Garzón, P.J. Sánchez Soto, Ref.: 2924598, Proceso para la preparación de materiales cerámicos básicos, biocerámicos y refractarios con alto contenido en forsterita mediante molienda reactiva de refractarios, Spain, 15/02/2023, University of Jaén (50 %)- University of Almería (25 %)-CSIC (25 %).

2. Patent: D. Eliche Quesada, S. Ruiz Molina, L. Pérez Villarejo, E. Castro Galiano, P.J. Sánchez Soto, C. Gallardo López, Ref.: 201931008, Utilización de polvo de filtro residual de la industria del aluminio para la obtención de espumas rígidas geopoliméricas, material obtenido y usos del mismo, Spain, 31/03/2021, University of Jaén (75 %)-CSIC (25 %).

3. Contract: Study to improve the impact resistance of ceramic materials formed by pressing. Cosentino Investigación y Desarrollo S.L. Principal Investigator: Juan Salvador Bueno Rodríguez. 24/03/2022-23/11/2022. 26.780,10 €.

4. Contract: Quantitative determination of quartz by XRD (Rietveld methodology). Ikerkune A.I.E. Principal Investigator: Luis Pérez Villarejo/Dolores Eliche Quesada, 14/05/2019-23/05/2019. 1.110,51 €.

C.8. Otros méritos

- Supervisor of a postdoctoral contract of the Ministry of Universities, Margarita Salas Programme for the training of young doctors, Researcher in charge. Modality A: Margarita Salas. Beneficiary: Dr. Sergio Martínez Martínez. Duración: 01/01/2022-18/09/2023

- Member of the Organising Committee of the 2nd VitroGeowastes. Vitrification and Geopolymerization of wastes for immobilization or recycling. Organiser and member of the scientific committee of the XLIX Congress of the Spanish Society of Ceramics and Glass (SECV) Ceramic Development and Sustainability, held at the EPSL, University of Jaén, 28-30 October 2009. Organiser of the II International Congress on Vitrification, Geopolymerization, Wastes Management, Green Cements and Circular Economy" (II Vitrogeowastes).

- Evaluator of research projects for the State Research Agency (AEI) of the Spanish Ministry of Science and Innovation: 16 projects evaluated since 2020.

- External evaluator of research projects for the Metropolitan Technological University of Chile (January 2024), Internal Competition Programme for the Promotion of R&D&I or Creation 2023 (1 project). External evaluator for the Universidad Pedagógica y Tecnológica de Colombia, evaluator of internal calls 2024, 1 evaluation. Evaluator of European projects: File CT-EX201D184247-101. CINEA Programme. Call InnovFund-SSC-2020, Completion of contract CT-EX2014D184247-101. European Climate, Infrastructure and Environment Executive Agency (CINEA). Project evaluator for FONCYT (Fondo para la Investigación Científica y Tecnológica) - Argentina.

- Reviewer of scientific articles for journals indexed in ISI Web of Knowledge: Applied Clay Science; J. Hazardous Materials, Ceramics International, Construction and Building Materials; J. of Cleaner Production, J. of Building Engineering, Cement and Concrete Composites, etc.