***CURRICULUM VITAE ABREVIADO (CVA)***

***IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.***

## Part A. PERSONAL INFORMATION *

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|---|---|---|---|
| **First name** | María Victoria | | |
| **Family name** | Borrachero Rosado | | |
| **Gender (*)** | Female | **Birth date (dd/mm/yyyy)** | |
| **Social Security, Passport, ID number** | | | |
| **e-mail** | | URL Web | |
| **Open Researcher and Contributor ID (ORCID)** (*) | 0000-0002-7873-0658 | | |

*(*) Mandatory*

### A.1. Current position

| | | | |
|---|---|---|---|
| **Position** | Catedrática de Universidad / Full Professor | | |
| **Initial date** | 2008 | | |
| **Institution** | Universitat Politècnica de València (UPV) | | |
| **Department/Center** | Departamento de Ingeniería de la Construcción y de Proyectos de Ingeniería Civil/ Escuela Técnica Superior de Ingeniería de Caminos, Canales y Puertos | | |
| **Country** | Spain | Teleph. number | |
| **Key words** | Pozzolan, waste materials, cement, alkaline-activation, durability, concrete LC3 cement | | |

### A.2. Previous positions (research activity interuptions, indicate total months)

| Period | Position/Institution/Country/Interruption cause |
|---|---|
| 1999-2008 | Titular de Universidad/UPV |
| 1998-1999 | Profesora Titular Escuela Univ- Inter-/UPV |
| 1997-1998 | Profesora Asociada ASO2/UPV |
| 1992-1996 | Profesora Asociada ASO1/UPV |
| 1991.1991 | Profesora Asociada ASO1/ Universitat de Valéncia |

### A.3. Education

| PhD, Licensed, Graduate | University/Country | Year |
|---|---|---|
| Tesis Doctoral | Universidad de Murcia | 1990 |
| Licenciatura en Química | Universidad de Murcia | 1985 |

## Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

My academic background is Chemistry degree in 1985 by Universidad de Murcia and a doctoral thesis in 1990 at the same university. During my doctoral and postdoctoral stage, my expertise was in inorganic chemistry (organometallic chemistry). Nevertheless, since 1991 my focus has been on the chemistry of building materials and their impact on the environment. Specifically, I have conducted several works in the field of materials for civil engineering:

a) Valorization of agroindustrial waste materials for application as construction material, especially in the production of mortars and concretes: fly ash, blast furnace slag, silica fume, fluid catalytic cracking residue, ceramic sanitary-ware, rice husk ash, rice straw ash, sugarcane bagasse ash.

b) Use of different instrumental techniques for binder's characterization: thermogravimetric analysis, scanning electron microscopy, X-ray diffraction, infrared spectroscopy, etc.

c) Development of new methods for characterization of pozzolanic materials: pH and electrical conductivity methods; determination of amorphous silica content, etc.

d) Production and characterization (mechanical, microstructural and durability aspects) of alkali-activated cement using alternative materials as precursors: ceramic wastes, fluid catalytic cracking residue, vitreous calcium aluminosilicate.
e) Development of innovative alkali-activated systems using alternative alkaline activating solutions: rice husk ash, olive biomass ash, almond shell biomass ash and residual diatomaceous earth.
e) Assessment of carbon footprint for alternative alkali-activated cement compared to conventional cement.
f) Development of non-destructive tests for construction materials characterization based on electrical resistivity and vibration spectra: evaluation of linear and non-linear parameters and their correlation with degradation process of mortars and concretes.
I am co-author of 140 publications in indexed journals, 188 publications between national and international congresses. In the same way, I am co-author of 11 book chapters and participant in 35 research projects. I participated in 25 knowledge transfer contracts with companies and participated in a patent on the use of catalytic cracking catalyst residue for performance improvements in mortars and concretes. With this work, I obtained an H-index of 35. Reviewer of journals such as Cement and Concrete Research or Construction and Building Materials. I have 6 six-year periods of research. I have also belonged to the committee of experts of the Aneca Academy program in Civil Engineering and Architecture. I am also a member of the committee of the accreditation agency of the community of Andalucia in the area of Engineering and Architecture. I have been an evaluator of research projects for the ANEP since 2007, uninterruptedly. I have been a project evaluator for the Ministry of Science and Technology during 2008 and 2012 for Civil Engineering and Architecture. I have also evaluated the Juan de la Cierva program in the 2016 academic year. In 2018, I evaluated groups at the CSIC.
During all these years as a researcher, I have been actively collaborating with national and international institutions. Collaborating with professors and researchers of the Universitat Jaume I de Castellón, Universidad de Alicante, Imperial College of London, Universidad Nacional de Colombia, Universidad Central Marta Abreu de las Villas (Cuba), UNESP Julio de Mesquita Filho (Brasil), Universidad de Atacama (Chile) and Universidad de Magallanes (Chile).
I have co-directed 9 doctoral theses, 22 master's thesis, and an advanced studies diploma. The students I have trained in research tasks have been of various nationalities. This knowledge transfer collaboration shows that many of these students have continued in the academic field. Others work in construction companies, such as cement companies, prefabricated, architectural design, etc.

## Part C. RELEVANT MERITS

### C.1. Publications

**1.** R.G. da Silva, K.H. Arcolezi, G.P. Lyra, J.L. Akasaki, L. Soriano, M.V. Borrachero, J. Payá, M.M. Tashima **(2025).** New insights on the development of sustainable pervious concrete using sand replacing paste volume – technical, economical, and environmental analysis. Journal of Building Engineering, 116, 114657. Q1.
**2**. P. Vargas, L. Soriano, M.V. Borrachero, J.I. Tobon, J. Payá, J. Monzó, M.M. Tashima **(2024**). Use of spent fluid catalytic cracking catalyst (FCC) in Limestone Calcined Clay Cement (LC3) systems: Studies in pastes and mortars. Journal of Cleaner Production, 451, 142177. Q1.
**3**. M.M. Tashima, L. Soriano, M.V. Borrachero, J. Monzó, J. Payá **(2023)**. Towards the valorization of Cumbre Vieja volcanic ash – Production of alternative cements. Construction and Building Materials, 370, 130635. Q1.
**4**. N. Bouzón, A. Font, M.V. Borrachero, L. Soriano, J. Monzó, M. M. Tashima, J. Payá **(2023)**. Evaluation of thermochemical treatments for rice husk ash valorisation as a source of silica in preparing geopolymers. Materials, 14, 4667. Q2.
**5.** A. Font, M. V. Borrachero, L. Soriano, J. Monzó, J. Payá **(2021)**. Air-Void system characterization of eco-cellular concretes. Journal of Materials in Civil Engineering, 33(5): 04021088. Q2.

**6**. L. Soriano, A. Font, M. M. Tashima,J. Monzó, M. V. Borrachero, T. Bonifácio, J. Payá **(2021).** Almond-shell biomass ash (ABA): A greener alternative to the use of commercial alkaline reagents in alkali-activated cement. Construction and Building Materials, 290, 123251. Q1.
**7**. A. Font, L. Soriano, M. M. Tashima, J. Monzó, M. V. Borrachero, J. Payá **(2020).** One-part eco-cellular concrete for the precast industry: Functional features and life cycle assessment. Journal of Cleaner Production, 269, 122203, Q1.
**8**. A. Font, L. Soriano, J. Monzó, J.C.B. Moraes, M.V. Borrachero, J. Payá **(2020)**. Salt slag recycled by-products in high insulation alternative environmentally friendly cellular concrete manufacturing. Construction and Building Materials, 231, 117114. Q1.
**9.** A. Font, M. V. Borrachero, L. Soriano, J. Monzó, A. Mellado, J. Payá **(2018).** New eco-cellular concretes: sustainable and energy-efficient materials. Green Chemistry, 20, 4684. Q1.
**10**. L. Reig, M.A. Sanz, M.V. Borrachero, J. Monzó, L. Soriano, J. Payá **(2017).** Compressive strength and microstructure of alkali-activated mortars with high ceramic waste content. Ceramics International, 43, 13622-13634. Q1.

**C.2. Congress**

**1.** ,L.Soriano, M.M.Tashima, D.B.Istuque, M.V.Borrachero, J.M.Monzó, J.Payá. Efecto de la ceniza de cáscara de almendra en conglomerantes activados alcalinamente. XVII Congreso Nacional de Materiales, 2024
**2**. P. Vargas, L. Soriano, M.V. Borrachero, J.I. Tobón, J. Payá, J. Monzó, M.M. Tashima. Valorizacion en el diseño de cementos LC3, de arcillas rechazadas en la industria cerámica. **Poster** at the XVII Congreso Nacional de Materiales, Málaga, June **2024**.
**3.** R. Garozi da Silva, J.L. Akasaki, L. Soriano, J. Payá, M.M. Tashima. Assessment of use of sugar cane bagasse ash and sugar cane straw ash in pervious concrete properties. **Oral presentation** at the 19th International conference on Non-Conventional Materials and Technologies (NOCMAT 2023), Joao Pessoa, Brazil, November **2023**.
**4**. L. Soriano, M.V. Borrachero, E. Giménez, M.M. Tashima, J. Monzó, J. Payá. Influence of accelerators in cement mortars using fluid catalytic cracking catalyst residue (FCC): enhancement in mechanical properties at early-curing ages. **Oral presentation** at the 2nd International Córdoba Eco-Concrete Conference (ICECC23), Córdoba, July **2023**.
**5**. J. Payá, J. Monzó, J. Rosello, M. V. Borrachero, A. Font, L. Soriano. Cenizas alcalinas de biomasa: una alternativa para la estabilización de bloques de tierra compactada. **Oral presentation** at the 19º Seminario Iberoamericano de Arquitectura y Construcción con Tierra (SIACOT 2019), Oxaca, México, **October 2019**.
**6**. A. Font, L. Soriano, M. V. Borrachero, J. Monzó, J. Payá. Desarrollo y análisis de nuevos hormigones eco-celulares en base al concepto de economia circular en la industria de los prefabricados. Oral presentation at the International Conference on Construction Research/ Eduardo Torroja. Architecture, Engineering and Concrete/AEC, Madrid, Noviembre **2018**.
**7**. A. Font, J. Monzó, L. Soriano, M. V. Borrachero, J. Payá. Nuevos hormigones celulares geopoliméricos aireados con agua oxigenada: Síntesis y propiedades. Oral presentation at the V Congreso Iberoamericano de Hormigón Autocompactante y Hormigones Especiales HAC 2018, Valencia, March **2018**.
**8**. A. Font, J. Monzó, L. Soriano, M. V. Borrachero, J. Payá. New cellular geopolymeric concretes (CGC) based on blastfurnace slag and spent FCC catalyst. Oral presentation at the 17th International Conference on Non-conventional Materials and Technologies (NOCMAT 2017), Mérida, Yucatán, México, November **2017**.
**9**. A- Font. L. Soriano, L. Reig, M. M. Tashima; M. V. Borrachero, J. Monzó, J. Payá. Use of residual diatomaceous earth as a slica source in geopolymers production. Poster at Vitrogeowastes. Vitrification and geopolymerization of wastes for immobilization or recycling, Elche, September **2017**.
**10.** M. Santini, M. M. Tashima; J. L. Akasaki, L. Soriano, J. Payá, M. V. Borrachero. Caracterizaçao de aglomerantes atiivados alcalinamente a partir da cinza de lodo de esgoto e escória de alto forno. Oral presentation at the 57º Congresso Brasileiro do Concreto (IBRACON 2015), Bonito, Mato Grosso du Sul, Brasil, October **2015**.

**C.3. Research projects**

**1**. Alternativas para el desarrollo de cementos LC3 a partir de residuos generados en España (PID2021-125890OB-I00). Convocatoria 2021. Funding entity: Agencia Estatal de Investigación. Affiliation entity: ICITECH- Universitat Politècnica de València. **IP1**:, M.V. Borrachero. Funding: 210661 €. Duration: 1/09/22 - 31/08/26.

**2**. Ecohormigón para arrecifes artificiales y otras infraestructuras marítimas (LIVINGREEFS) (INNEST/2022/72). Convocatoria 2022. Funding entity: Agencia Valenciana de la Innovación. Affiliation entity: ICITECH- Universitat Politècnica de València. I.P: J. Payá. Degree of participation: **Equipo de investigación**. Funding:117.524,91 €. Duration: 06/05/22 - 30/09/24.

**3**. Nuevos retos en cementos activados alcalinamente: sostenibilidad y evaluacion ambiental (RTI2018-097612-B-C21-AR). Convocatoria 2018. Funding entity: Agencia Estatal de Investigación. Affiliation entity: ICITECH- Universitat Politècnica de València. I.P: J. Monzó. Degree of participation: **Equipo de investigación.** Funding:101.640,00 €. Duration: 15/11/19 - 30/06/22.

**4**. For conservation planning and a new use study for Fernando Moreno Barberá`s Paraninfo at the Universidad Laboral de Cheste in Spain (R-ORG-201943181). Jena Paul Guetty Trust. IP Carmen Jordá- **Equipo de investigación** From 03/06/2019**.** 170000 eurs

**5**.Aplicaciones de sistemas geopolimericos obtenidos a partir de mezclas de residuos: morteros, hormigones y estabilizacion de suelos. (BIA2015-70107-R). Convocatoria 2015. Funding entity: Ministerio de Asuntos Económicos y Transformación Digital. Affiliation entity: ICITECH- Universitat Politècnica de València. I.P: J. Monzó. Degree of participation: **Equipo de investigacion.** Funding:123.420,00 €. Duration: 01/11/16 - 31/12/18.

**6**. Reutilización de residuos cerámicos y de demolición en la preparación de nuevos materiales geopolimericos (BIA2011-26947). Convocatoria 2011. Funding entity: Ministerio de Asuntos Económicos y Transformación Digital. Affiliation entity: Universitat Politècnica de València. I.P: M.V. Borrachero. Funding:162.745,00 €.

**C.4. Contracts, technological or transfer merits**,

**1**. Desarrollo de una nueva tecnologia de regeneracion autonoma e inteligente de materiales (TRAINER) (CENIT 2010). Entidad de realización: Universitat Politècnica de València. IP: J. Payá, **Equipo de investigación**. Company: CONSTRUCCIONES Y ESTUDIOS, S.A. Fecha de inicio: 01/10/2010 Duración: 2 años - 3 meses- Cuantía total: 140.000 €.

2.Nuevos desarrollos para el uso de cenizas volantes de alto rendimiento puzolanico. Entidad de realización: Universitat Politècnica de València. IP: J. Payá. **Equipo de investigación**. Company: INFRAESTRUCTURAS BALALVA, S.L. Fecha de inicio: 27/01/2010 Duración: 1 años. Cuantía total: 60.000 €.