



CURRICULUM VITAE (CVA)

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

Part A. PERSONAL INFORMATION

CV date

14/01/22

First name	Luis Arístides		
Family name	Távora Mendoza		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)			

(*) Mandatory

A.1. Current position

Position	Associate Professor (Profesor Titular de Universidad)		
Initial date	13/11/2019		
Institution	Universidad de Sevilla		
Department/Center	Continuum Mechanics	<u>Engineering School</u>	
Country	Spain	Teleph. number	
Key words	Fracture mechanics, 3D printing, damage, mechanical behaviour, numerical methods, composites, structures.		

A.2. Previous positions (research activity interruptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause
15/12/2010 – 25/04/2012	Teaching Assistant (PA) / Universidad de Sevilla / Spain
26/04/2012 – 03/05/2016	PhD Assistant Professor (PAD) / Universidad de Sevilla / Spain
04/05/2016 – 12/11/2019	Associate Professor (PCD) / Universidad de Sevilla / Spain
13/11/2019 –	Associate Professor (PTU) / Universidad de Sevilla / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	Universidad de Sevilla / Spain	2010
Master in Advanced Design in Mechanical Engineering	Universidad de Sevilla / Spain	2008
Materials Engineering	Universidad Nacional de Trujillo / Perú.	2005

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

Research has been developed continuously through the time and focused on the following lines: non-classical fracture mechanics applied to the analysis of crack onset and growth in composite materials, development of analytical and numerical tools able to solve the previously mentioned problems, and the characterization of the 3D printed composites and their applications. The first research line was oriented to understanding the damage mechanisms on composites at micro, meso and macro scales. The aim was to enrich the knowledge of composites' damage (or fracture) behaviour thus improving the failure prediction. The second line includes numerical analyses (using the Boundary Element Method, BEM, and the Finite Element Method, FEM) that were correlated with experimental data at



micro and macro scales. Damage was implemented and modelled using the classical Linear Elastic Fracture Mechanics (LEFM) and also non-classical models as Cohesive Zone Models (CZM), Linear Elastic Brittle Interface Models (LEBIM) and Finite Fracture Mechanics (FFM). Finally, the third line studies the Additive Layer Manufacturing (ALM) process on composites and identify some applications where ALM parts can be used.

Obtained results include 35 publications on recognized international journals (22 on first quartile JCR journals) and 2 book chapters, being the first author in most of the publications. Four papers are highlighted with 182, 75, 40 and 36 cites on Scopus database, obtaining an h-index equal to 11. Additionally, 22 papers published in National Journals (derived from National Conferences) support the research developed. Scientific production is complemented with a large number of conference contributions (30 international and 10 national conferences) being more than 95% oral presentations. Financial support associated to these results includes the coordination (Principal Investigator) of the following grants: (a) US-1266016, Junta de Andalucía through Universidad de Sevilla, from 01/02/2020 to 30/04/2022, 90.000,00 €. (b) PGC2018-099197-B-I00, Spanish Science and Innovation Ministry, from 01/01/2019 to 31/12/2021, 60.500,00 €. (c) AT17_5908_USE, Junta de Andalucía, Actividades de Transferencia, from 01/01/2020 to 31/07/2021, 59.500,00 €. (d) P12-TEP-1050, Junta de Andalucía, Excellence Projects, from 30/01/2014 to 29/01/2018, 116.745,00 €. Additionally, it is remarkable the participation as researcher in 5 National (Spanish) Projects and 3 Regional (Andalusian) Projects.

It is also interesting to notice the international collaboration (evidenced with journal/conference publications) with the following researchers: P. Cornetti (POLITO, Italy), L.J. Gray (ORNL, USA), C.G. Panagiotopoulos (Hellenic Mediterranean University, Greece), A. Salvadori (U. Brescia, Italy), A. Saporita (POLITO, Italy), R. Vodicka (TUKE, Kosice, Slovakia).

Innovation was also a part of the activity, shown by nine contracts with different companies: ENDESA, ABENGOA, EMASESA, AIRBUS. The variety of topics and the solution of relevant problems from the technical and industry point of view can be shown. Two main results are highlighted: (a) a Spanish, European and USA patent with inventors from Universidad de Sevilla and AIRBUS and (b) introduction of Machine Learning techniques for the pipe failure assessment on water distributions systems. Treasurer of the Spanish Structural Integrity Society (Spanish Group of Fracture) since April 2019.

Regarding the training capacity, 2 PhD theses were co-supervised, both obtained the maximum qualification (Sobresaliente "cum laude") in 2020 and 2021. At the moment, 3 PhD students are being supervised. Additionally, 24 final projects (including engineering bachelor and master) were directed, it is remarkable that results included in some of these projects were published in international journals and conferences. At last, a supervision of a young investigator for a two-year contract in the framework of European Youth Guarantee is running from April 2021.

Three special issues in recognized journals were edited (as invited editor): Composites Part A (2015), International Journal of Fracture (2019) and Theoretical and Applied Fracture Mechanics (2019). Usual reviewer of international journals (45 manuscripts reviewed) and reviewer of 5 projects for the Spanish National Research Agency (AEI).

Finally, although I am signer of the San Francisco Declaration on Research Assessment (DORA), some classical indicators are listed in the following:

Web of Science ([K-1734-2014](#)): 37 documents, 449 cites, h-index=10.

Scopus ([16308392400](#)): 43 documents, 520 cites, h-index=11 (392 cites, h=9 excluding self-citing).

Google Scholar ([Vh8cR0kAAAAJ](#)): 81 documents, 784 cites, h-index=13.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- 1. International Journal.** Muñoz-Reja M., Távara L., Mantič V., Cornetti P., (2020) A numerical implementation of the Coupled Criterion of Finite Fracture Mechanics for elastic interfaces. Theoretical and Applied Fracture Mechanics 108, 102607.
- 2. International Journal.** Távara L., Moreno L., Paloma E., Mantič V., (2019) Accurate modelling of instabilities caused by multi-site interface-crack onset and propagation in composites using the sequentially linear analysis and Abaqus. Composite Structures 225, 110993.
- 3. International Journal.** Távara L., Reinoso J., Blázquez A., Mantič V., (2019) On the 3D extension of failure models for adhesive joints under mixed-mode fracture conditions: LEBIM and CZM. Theoretical and Applied Fracture Mechanics 100, 362–376.

4. **International Journal.** Justo J. Távara L., García-Guzmán L., París F., (2018) Characterization of 3D printed long fibre reinforced composites. *Composite Structures* 185, 537–548.
5. **Book Chapter.** París F., Correa E., Távara L., García-García I., Mantič V., (2018) Micromechanics of Interfacial Damage in Composites. In: *Comprehensive Composite Materials II*. Elsevier. ISBN: 9780081005330
6. **International Journal.** Távara L., Reinoso J., Castillo D., Mantič V., (2018) Mixed-mode failure of interfaces studied by the 2D linear elastic–brittle interface model: Macro- and micro-mechanical finite-element applications in composites. *The Journal of Adhesion*, 94:8, 627-656.
7. **International Journal.** Reinoso J., Blázquez A., Távara L., París F., Arellano C. (2016) Damage tolerance of composite runout panels under tensile loading. *Composites Part B* 96:79-93.
8. **International Journal.** Muñoz-Reja M., Távara L., Mantič V., Cornetti P., (2016) Crack onset and propagation at fibre–matrix elastic interfaces under biaxial loading using finite fracture mechanics. *Composites: Part A* 82, 267–278.
9. **International Journal.** Távara L., Mantič V., Graciani E., París F., (2016) Modelling interfacial debonds in unidirectional fibre-reinforced composites under biaxial transverse loads. *Composite Structures* 136: 305–312.
10. **International Journal.** Mantič V., Távara L., Blázquez A., Graciani E., París F., (2015) A linear elastic–brittle interface model: application for the onset and propagation of a fibre-matrix interface crack under biaxial transverse loads. *Int J Fract* 195, 15–38.
11. **International Journal.** Távara L., Mantič V., Salvadori A., Gray L.J., París F., (2013) Cohesive-zone-model formulation and implementation using the symmetric Galerkin boundary element method for homogeneous solids. *Comput Mech* 51, 535–551.
12. **International Journal.** Távara L., Mantič V., Graciani E., París F., (2011) BEM analysis of crack onset and propagation along fiber–matrix interface under transverse tension using a linear elastic–brittle interface model. *Engineering Analysis with Boundary Elements* 35, 207–222.

C.2. Congress

1. García-Guzmán L., Távara L., Finite displacement and rotation implementation of the linear elastic brittle interface model applied to structured interfaces in double cantilever beam specimens. Congreso de Métodos Numéricos en Ingeniería. Guimaraes, Portugal, 1-3 julio 2019.
2. Távara L., Reinoso J., Blázquez A., Mantič V., A computational implementation of 3D mixed-mode fracture criteria which are invariant with respect to the reference system. ECF22 - 22nd European Conference on Fracture. Belgrado, Serbia, 26-31 agosto 2018.
3. García-Guzmán L., Távara L., Reinoso J., Justo J., París F., Enhancing the fracture toughness of adhesively bonded joints using 3D printed structured interfaces. ECCM18 - 18th European Conference on Composite Materials. Atenas, Grecia, 24-28 junio 2018.
4. Távara L., Mantič V., BEM analysis of crack paths modelled as a sequence of interfacial debonds in unidirectional composites. XVIII International Conference Boundary Element and Meshless Techniques. Bucarest, Rumanía, 11-13 julio 2017.
5. Távara L., Muñoz-Reja M., Mantič V., Implementation of the finite fracture mechanics criterion at elastic interfaces in the FEM package Abaqus. 14th International Conference on Fracture (ICF 14). Rodas, Grecia, 18-23 junio 2017.
6. Távara L., Mantič V., Reinoso J., Estefani A., París F., Fibre-matrix debonds in unidirectional fibre-reinforced composites under biaxial transverse loads. ICMFF11 – International Conference on Multiaxial Fatigue & Fracture. Sevilla, España, 1-3 junio 2016.

C.3. Research projects

1. P18-FR-1928. Predicción de daño en uniones adhesivas con materiales compuestos usando la Mecánica de la Fractura Finita. Desarrollo y aplicación de nuevos elementos finitos singulares (DAMCOMP) Plan Andaluz de Investigación, Desarrollo e Innovación (PAIDI 2020) IP: Mantič, Vladislav / Barroso Alberto. (Universidad de Sevilla). 1/1/2020-31/12/2022. 89800 EUR.
2. US-1266016. Nuevas soluciones elásticas asintóticas para grietas con condiciones de contorno cohesivas o de elasticidad de superficie y su aplicación en la implementación de nuevos elementos finitos y de contorno singulares. Universidad de Sevilla. Programa Operativo FEDER de Andalucía



- 2014-2020. IP: Mantic, Vladislav / **Távora, Luis**. (Universidad de Sevilla). 1/2/2020-30/04/2022. 90000 EUR.
3. PGC2018-099197-B-I00. Soluciones Elásticas Singulares para Esquinas y Grietas con Condiciones de Contorno Cohesivas o de Elasticidad de Superficie. Desarrollo de Elementos Finitos Especiales. Ministerio de Ciencia, Innovación y Universidades. IP: Mantic, Vladislav / **Távora, Luis**. (Universidad de Sevilla). 1/1/2019-31/12/2021. 60500 EUR.
 4. AT17_5908_USE. Desarrollo de prototipo para la evaluación in-situ de la tenacidad a la fractura en uniones encoladas composite-composite. Plan Andaluz de Investigación, Desarrollo e Innovación (PAIDI 2020). IP: **Távora, Luis** (Universidad de Sevilla). 1/2/2020-31/07/2021. 59500 EUR.
 5. MAT2015-71036-P. Nuevos Enfoques de la Mecánica de la Fractura Computacional para la Caracterización de Inicio y Crecimiento de Grietas en Materiales Compuestos en Diferentes Escalas. Ministerio de Economía y Competitividad. IP: Mantic, Vladislav / Blázquez, Antonio M. (Universidad de Sevilla). 1/1/2016-31/12/2018. 59290 EUR.
 6. MAT2015-71309-P. Desarrollo de un Procedimiento de Dimensionamiento por Unfolding en Materiales Compuestos. Ministerio de Economía y Competitividad. IP: Graciani, Enrique / Cañas, José (Universidad de Sevilla). 1/1/2016-31/12/2018. 94864 EUR
 7. P12-TEP-1050. Estudio del Comportamiento de Laminados Gruesos de Material Compuesto Sometidos a Cargas de Compresión. Proyecto Excelencia Junta de Andalucía. IP: **Távora, Luis** (Universidad de Sevilla). 30/01/2014-29/01/2018. 116744,70 EUR.
 8. DPI2012-37187. Elementos Laminados Avanzados para Análisis no Lineales de Paneles de Material Compuesto. Proyecto Excelencia Junta de Andalucía. IP: Blázquez, Antonio M. (Universidad de Sevilla). 1/1/2013-31/12/2015. 58500 EUR.
 9. MAT2012-37387. Caracterización y medida de las propiedades de la interfase en materiales compuestos mediante ensayos de fibra única usando enfoques no clásicos de la Mecánica de la Fractura. Ministerio de Economía y Competitividad. IP: Mantic, Vladislav (Universidad de Sevilla). 1/1/2013-31/12/2015. 70200 EUR
 10. MAT2009-14022. Generación de un criterio de fallo para la predicción del fallo entre fibras en materiales compuestos en base a los mecanismos de daño del material. IP: París, Federico (Universidad de Sevilla). 1/1/2010-31/12/2013. 90750 EUR.
 11. P08-TEP-04051. Estudio de inicio y propagación de daño en materiales compuestos a escala micro y meso mediante desarrollo y aplicación de la mecánica de la fractura finita. IP. Mantic, Vladislav (Universidad de Sevilla). 13/1/2009-13/1/2013. 269923,68 EUR.

C.4. Contracts, technological or transfer merits

1. **Patent:** Cañas J., París F., Távora L., Blázquez A., Estéfani A., Santacruz G., Stöven T., Nº de publicación: ES-2726912. Nº de solicitud. P201830349. European patent: EP1650.94. US patent: US2021/0293695 A1. Equipo de ensayo para la determinación in situ de la tenacidad a la fractura de uniones encoladas. Patente de invención, Propiedad industrial. Titular: Universidad de Sevilla.
2. **Contract:** Investigación aplicada a la implementación de criterios de priorización, planificación y gestión de inversiones, para la justificación de la metodología de gestión patrimonial de infraestructuras de EMASESA. (3313/0002). IP: Luis Onieva. 4/5/2018-9/10/2019. 212223,26 EUR.
3. **Contract:** Investigación aplicada al análisis del comportamiento y durabilidad de los materiales de las redes de abastecimiento y saneamiento, para la optimización de las herramientas de gestión patrimonial de infraestructuras de EMASESA. (3276/0002). IP: Luis Onieva. 9/3/2018-27/4/2020. 269331 EUR.
4. **Contract:** CERSOL (Receptor Cerámico de alta temperatura y presión para sistemas solares híbridos con turbina gas y sistemas de ciclo combinado). IP: **Távora-Mendoza, Luis** (Universidad de Sevilla). 5/4/2013-31/12/2013. 50000 EUR
5. **Contract:** SILENCIO. IP: Cañas-Delgado, José (Universidad de Sevilla). 5/4/2013-31/12/2013. 114500 EUR.
6. **Contract:** Estudio Numérico de tornillos frangibles. IP: Paris-Carballo, Federico (Universidad de Sevilla). 26/12/2012-14/12/2012. 3630 EUR.
7. **Contract:** Análisis de fallo de módulos fotovoltaicos en seguidores solares ADES. IP: Paris-Carballo, Federico (Universidad de Sevilla). 1/1/2010-1/1/2011. 15900 EUR.