MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

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	22/03/2022

First name	María Inmaculada		
Family name	Torres Castro		
Gender (*)	Female		
e-mail	inmatorres@unex.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-2590-8379	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	21/09/2020		
Institution	University of Extremadura		
Department/Center	Department of Mathematics	Faculty of Sport Sciences	
Country	Spain	Telephone	+34927257444
Key words	Maintenance, reliability, stochastic modelling		

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

Period	Position/Institution/Country/Interruption cause
13/05/2007-21/09/2020	Associate Professor/University of Extremadura/Spain
21/10/1999-13/05/2007	Assistant Professor/University of Extremadura/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ph D. in Mathematics	University of Granada	2000
Graduate in Mathematics Science	University of Granada	1996

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

Inmaculada Torres has a PhD in Mathematics from the University of Granada. She is currently Full Professor at the Department of Mathematics of the University of Extremadura. Previously, she was Associated Professor in the same university. She has 3 research periods (“sexenios”) credited by the CNEAI (2000-2005, 2006-2011, 2012-2017). Her main line of research is framed in issues of stochastic modelling in maintenance and reliability. On this issue, she has published 37 papers in JCR journals, 17 of them in the first quartile. She has published 3 book chapters and attended 59 international conferences: 9 of these conferences as invited speaker and 1 of them as plenary speaker. In Scopus platform, the total number of her citations exceeds 1200 and she has the h-index of 18.

She has visited different departments as invited professor*:* Department of Industrial Economics, Risk Management and Planning (University of Stavanger), Institut Charles Delunay and STMR (Université de Technologie de Troyes), Service de Métrologie Nucléaire (Université Libre de Bruxelles), Laboratorie de Mathématiques et de leurs applications (Université de Pau et des Pays de l'Adour), Department of Statistics (*Ewha* Womans University), Department of Mechanical and Industrial Engineering (Norwegian University of Science and Technology, Throndheim), Kent Business School (University of Kent),

Department of Industrial Engineering & Innovation Science (Eindhoven University of Technology) among others. She got a mobility grant Salvador de Madariaga for senior professors in 2022 to fund a research stay in Grenoble (from July to October, 2022). She has managed 14 competitive research projects leading 4 of these projects. She has been principle advisor of two doctoral theses, seven master's thesis and 17 bachelor theses ("Trabajos Fin de Grado"). She serves as Member of Editorial Board in two international journals and she has reviewed more than 120 papers from 2009 of 35 different journals. She has participated in different dissemination activities: international event "Pint of Science" and in the radio podcast "Women in Science". She participated as researcher in the dissemination project "Aporciencias" financing from Fundación Española para la Ciencia y la Tecnología (Fecyt) in 2019. She held the position of Academic Secretary in the Faculty of Sport Science from 2005.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(from 2011 up to now)*

1. L. Bautista, Castro I.T., Landesa L. (2022) Condition-based maintenance for a system subject to multiple degradation processes with stochastic arrival intensity, European Journal of Operational Research, (doi: 10.1016/j.ejor.2022.01.004)

2. L. Bautista, Castro I.T., Landesa L. (2021) Maintenance cost assessment for heterogeneous multi-component systems incorporating perfect inspections and waiting time to maintenance, Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability, 1748006X211038804.

3. Castro I.T., Basten R.J.I., van Houtum GJ (2020) Opportunistic maintenance for heterogeneous complex systems under continuous monitoring, Reliability Engineering & System Safety, 200, 106745.

4. Wu S., Castro I.I. (2020) Maintenance policy for a system with a weighted linear combination fo degradation processes, European Journal of Operational Research, 280(1), 124—133.

5. Castro I.T., Landesa L. (2019) A dependent complex degrading system with non-periodic inspection times, Computers & Industrial Engineering, 133, 241—252.

6. Castro I.T., Landesa L., Serna A. (2019) Modeling the energy harvested by an RF energy harvesting system using gamma processes, Mathematical Problems in Engineering, Volume 2019, Article ID 8763580, 12 pages

7. Caballé N, Castro IT (2019) Assessment of the maintenance cost and analysis of availability measures in a finite life cycle for a system subject to competing failures, OR Spectrum 41(7), 255-290.

8. Mercier S., Castro I.T. (2019) Stochastic comparison of imperfect maintenance models for a gamma deteriorating system, European Journal of Operational Research, 273(1), 237-248.

9. Caballé N, Castro, IT (2017) Analysis of the reliability and the maintenance cost for finite cycle systems subject to degradation and shocks, Applied Mathematical Modelling 52, 731-746.

10. Cha J.H., Sanguesa C. Castro I.T. (2016) Maintenance policy for a system with stochastically dependent failure modes, IEEE Transactions on Reliability, 65(3), 1284-1297.

11 Castro I.T., Mercier S., (2016) Performance measures for a deteriorating system subject to imperfect maintenance and delayed repairs, Proceedings of the Institution of Mechanical Engineers, Part O: Journal of Risk and Reliability, 230(4), 364-377.

12. Cha J.H., Castro I.T., (2015) A stochastic failure model with dependent competing risks and its applications to condition-based maintenance, Journal of Applied Probability, 52(2), 558-573.

13. Castro, I. T., Caballé, N. C., Perez, C. J. (2015) A condition-based maintenance for a system subject to multiple degradation processes and external shocks, International Journal of Systems Science 46(9), 1692-1704.

14. Caballé, N. C., Castro, I. T., Perez, C. J.; Lanza-Gutiérrez J. (2015) A condition-based maintenance of a dependent degradation-threshold-shock model in a system with multiple degradation processes, Reliability Engineering & System Safety 134, 98-109.

15. Huynh K.T.,Castro I.T., Barros, A., Bérenguer C. (2014) On the Use of Mean Residual Life as a Condition Index for Condition-Based Maintenance Decision-Making, IEEE Transactions on Systems Man Cybernetics-Systems, 44(7), 877-893.
16. Huynh, K.T., Castro, I. T., Barros, A., Bérenguer C. (2012) Modeling age-based maintenance strategies with minimal repairs for systems subject to competing failure modes due to degradation and shocks, European Journal of Operational Research, 218(1), 140-151.
17. Huynh K, Barros A, Berenguer C, Castro I.T. (2011) A periodic inspection and replacement policy for systems subject to competing failure modes due to degradation and traumatic events, Reliability Engineering & System Safety, 96(4), 497-508.
18. Castro IT, Barros A, Grall A (2011) Age-based preventive maintenance for passive components submitted to stress corrosion cracking, Mathematical and Computer Modelling, 54(1-2), 598-609.

Ongoing works: Ahmadi R. Bautista L. Castro I.T. Reliability modeling and maintenance planning for a parallel system with respect to the state-dependent-mean-residual time, submitted to *Journal of the Operational Research Society*

C.2. Congress (*in the last four years*)

1. Bautista L. Castro IT. A condition-based maintenance policy in a system with heterogeneities, ENBIS (European Network for Business and Industrial Statistics), Grenoble (France) May 2022
2. Bautista L. Castro I.T. Landesa L. A degradation model for a system incorporating heterogeneities, Study of a degrading system with stochastic arrival intensity subject to Condition-Based Maintenance, 60th ESReDA (European Safety, Reliability & Data Association) Seminar, Grenoble (France), May 2022.
3. Bautista L., Castro I.T. Multiple deterioration processes with stochastic arrival intensity, 31st European Safety and Reliability Conference, Angers (France), September 2021. **Invited session**
4. Bárcena L., Castro I.T. Cox processes in systems degradation modelling, Summer Safety and Reliability Seminar and Workshop, Ciechocinek (Poland), September 2021.
5. Castro I.T. (2021) Condition-based maintenance for systems subject to multiple degradation processes, EIMS International Conference on Computational Mathematics, Seoul (Korea), August 2021. **Invited Speaker**
6. Bautista L., Castro I.T. (2021) Deterioration of a system with Cox arrival times, 31st European Conference on Operational Research, Online participation.
7. Bárcena L., Castro I.T., Landesa L., A periodic inspection policy for heterogeneous complex systems, 11th IMA International Conference on Modelling in Industrial Maintenance and Reliability, June 2021, Online participation.
8. Bárcena L., Castro I.T. A condition-based maintenance for heterogeneous complex systems under a periodic inspection policy, Summer Safety and Reliability Seminar and Workshop, Ciechocinek (Poland), September 2020.
9. Castro I.T., Bárcena L. Design of a periodic inspection policy in heterogeneous systems with two types of components, 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStat), December 2020, Online Participation
10. Castro I.T., Landesa L., Bautista L. (2019) A dependence model for complex degradation processes, Mathematical Methods in Reliability, Hong Kong (China), June 2019. **Invited session**
11. Castro I.T., Caballé N. (2018) Dependence model for complex deteriorating, 23rd International Conference on Computational Statistics, Iasi, Romania, September 2018. **Invited session**
12. Castro I.T. Mercier S. (2018) Two imperfect repair models for a gamma deteriorating system: a comparison. 28th European Safety and Reliability Conference, June 2018.

13. Castro I.T., Landesa L., Serna A. Applications of the gamma processes in storage models: energy harvesting systems. 10th IMA international Conference on Modelling in Industrial Maintenance and Reliability, Manchester (UK), June 2018.
14. Castro I.T., Mercier S. (2017) Imperfect repair models in a degrading system. The equivalent case. Mathematical Methods in Reliability, Grenoble (France), July 2017 **Invited session.**
15. Caballé N., Castro I.T. (2017) Performance measures for a system subject to degradation and sudden shocks, 27th European Safety and Reliability Conference, Portoroz (Eslovenia), June 2017.
16. Caballé N., Castro I.T. (2017) A degradation threshold-shock-model for a system. The case of dependent failures in finite time, Summer Safety and Reliability Seminars, Gsdank (Ponland) June 2017.

C.3. Research projects

1. Incorporación de un enfoque estocástico en algoritmos de computación electromagnéticos (Deep-electromagnetic) IB18073
Participation: Researcher
Grant: 150000 Euros
Duration 1/02/2019-01/02/2022
Financing from. Junta de Extremadura
Main Researcher: Luis Landesa.

2. Modelos estocásticos en fiabilidad e inventarios. Aplicaciones al mantenimiento de sistemas multivariantes (PGC2018-094964-B-100)
Grant: 22748 Euros
Duration 01/01/2019-01/01/2022
Financing from Ministerio de Ciencia, Innovación y Universidades
Main researcher: Germán Badía.

3. Fiabilidad de sistemas: modelado estocástico de deterioro y mantenimiento imperfecto. Prolongación de su vida útil (MTM2015-63978-P).
Financing from: Ministerio de Ciencia e Innovación**.**
Duration 01/01/2016-31/12/2018
Main Researcher: Carmen Sanguesa
Grant: 30900 Euros

4. Desarrollo y aplicación de una tecnología no invasiva de bajo coste basada en biomarcadores acústicos para el diagnóstico y seguimiento automáticos de enfermedades de la voz
Financing from. Junta de Extremadura
Duration: 01/06/2017-31/05/2020
Main researcher: Carlos Pérez
Grant 74011.30 euros

5. Fiabilidad de sistemas: modelado estocástico de su envejecimiento, deterioro y mantenimiento. Aplicación a modelos de fallos competitivos I (Proyecto coordinador con el proyecto "Fiabilidad de sistemas: modelado estocástico de su envejecimiento, deterioro y mantenimiento. Aplicación a modelos de fallos competitivos II"). MTM2012-36603-C02-C01
Financing from: Ministerio de Ciencia e Innovación**.**
Duration 01/01/2013-31/12/2015
Main Researcher Inmaculada Torres
Grant: 11.700 Euros

6. Aporciencias
Financing from: Fundación Española para la Ciencia y la Tecnología
Duration 01/07/2019-30/06/2020
Main Researcher Elena Jurado Málaga
Grant: 26.000 Euros

C.4. Contracts, technological or transfer merits