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| **CV date** |  03/11/2021 |
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**Part A. PERSONAL INFORMATION**

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| --- | --- |
| First and Family name | Maria Eugenia Mera |
| Social Security, Passport, ID number | 50431737M | Age | 55 |
| Researcher numbers | Researcher ID (WoS) |  R-3674-2018 |
| Orcid code |  0000-0002-1592-974X |
| Scopus Author ID: | 6701663000 |

**A.1. Current position**

|  |  |
| --- | --- |
| Name of University/Institution | Complutense University of Madrid  |
| Department | Economic Analysis |
| Address and Country | Economic and Business Administration Faculty. Campus of Somosaguas. 28223 Madrid. Spain |
| Phone number |  34913942407 | E-mail | mera@ucm.es |
| Current position |  Titular de universidad | From | 2002 |
| Espec. cód. UNESCO | 120903, 120217, 120915, 120607, 120612, 310510, 531201 |
| Keywords | Data assimilation, Nonlinear time series analysis,  Chaotic Dynamics, Fractal Geometry, Bioeconomical fisheries analysis |

**A.2. Education**

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| --- | --- | --- |
|  | University | Year |
| BSc Mathematics | Complutense of Madrid | 1989 |
| PhD Mathematics | Complutense of Madrid |  1995 |

**A.3. JCR articles, h Index, …**

* **2 sexenios**, the last one in 2013.
* **10 JCR** articles: 2D1, 5Q1, 3Q2
* **1 SJCR** article (Q3).
* 4 articles in conference proceedings
* 1 book
* Metrics (Scopus/WoS/Google Scholar): papers 11/11/20; cites 54/58/114; h-index 5/5/5.

**Part B.**

**CV SUMMARY**

I have expertise in the research areas of Nonlinear Analysis of Time Series, Fractal Geometry, and Bioeconomical fisheries analysis.

Author of 15 papers (10 in JCR journals, and 1 in a SJCR journal), all in collaboration with the Professor Manuel Morán, and 4 in collaboration with other authors.

One of our contributions in the first area was to prove the convergence of the Eckmann and Ruelle algorithm, one of the most frequently used algorithms for computing, using a time series, the Lyapunov exponents of a chaotic dynamics. We have also designed and tested different algorithms for reducing the measurement noise, estimating the level of noise of a chaotic time series corrupted by noise, and for computing some characteristics of a chaotic dynamics from a time series. We have published in this area 10 articles, 7 in JCR journals.

In the second area I have 5 papers, 3 in JCR journals. One of my contributions was to introduce the notion of upper porosity of a measure, published jointed with Manuel Morán in the Real Analysis Exchange journal. This publication allowed us to collaborate with Professors D. Preiss and L. Zajicek, that resulted in a joint publication in Nonlinearity in which we analyzed the advantages and properties of this new notion of upper porosity. This is my most cited paper. In this area I have also worked, in collaboration with Marta LLorente and Manuel Morán, on the numerical computation of the packing and centered Hausdorff measures of self similar sets, and on the convergence of the proposed algorithms.

Finally my present research interest focuses on the data assimilation aspects in the area of bioeconomical analysis of fisheries. I began to work in this area since my participation in 2014 in the international project titled “Stochastic bioeconomics and population dynamical modelling of collapsed fisheries”, headed by José María Maroto.

**Part C. RELEVANT MERITS**

**C.1. Publications**

1. Title: On the packing measure of the Sierpinski gasket
 Author(s): Llorente, Marta; Mera, M.E.; Morán, Manuel
 Source: Nonlinearity. Volume: 31 Issue: 6 Pages: 2571-2589

Published: JUN 2018. JCR: **Q1** (54/254), Q2 (17/55)

1. Title: Rate of convergence: the packing and centered Hausdorff measures of totally disconnected self-similar sets
 Author(s): Llorente, Marta; Mera, M. Eugenia; Morán, Manuel
 Source: Chaos Solitons & Fractals. Vol: 98 Pages: 220-232

Published: MAY 2017. JCR **Q1**(10/55), Q2(26/103), Q2(26/78)

1. Title: Error Covariance Matrix Estimation of Noisy and Dynamically Coupled Time Series
 Author(s): Mera, Maria Eugenia; Morán, Manuel

Source: Journal of Statistical Physics. Volume: 150 Issue: 2 Pages: 375-397.

Published: JAN 2013, JCR **Q2**(26/55)

1. Title: Noise reduction by recycling dynamically coupled time series
 Author(s): Mera, M.E.; Morán, M.
 Source: Chaos. Volume: 21 Issue: 4 Pages: 1-14.

Published: 2011 JCR: **D1** (7/245), Q1(7/55)

1. Title: Reduction of noise of large amplitude through adaptive neighborhoods
 Author(s): Eugenia Mera, M.; Morán, Manuel
 Source: Physical Review E. Volume: 80 Issue: 1 Pages 1-8.

Published: JUL 2009. JCR **Q1** (5/47), Q2 (8/28)

1. Title: Numerical Estimation of the Lyapunov Exponents of Chaotic Time Series Corrupted by Noises of Large Amplitude
 Author(s): Mera, M.E.; Morán, Manuel
 Source: Numerical Analysis and Applied Mathematics. International Conference on Numerical Analysis and Applied Mathematics 2009. Vol 1 Pages 310-313. Published: 2009. ISBN 978-0-7354-0705-3.
2. Title: Geometric noise reduction for multivariate time series.

Autors(s): Mera, M.E.; Morán, Manuel

Source: Chaos 16, 01311, 1-11

Published 2006. JCR **D1** (9/175), Q1 (10/46)

1. Title: Porosity, -porosity and measures

Author(s) Mera, M.E, Morán M., Preiss D., Zajicez L.

Source: Nonlinearity, vol 16, 247-255

Published 2002. JCR: **Q1** (24/156), Q3 (16/29)

1. Title: Degrees of freedom of a time series

Author(s): Mera, M.E.; Morán, Manuel

Source: Journal of Statistical Physics. Vol 106, 125-145

Published 2002. JCR **Q1** (6/29)

1. Title: Attainable values for upper porosities of measures

Author(s): Mera, M.E.; Morán, Manuel

Source: Real Analysis Exchange 26 (1) 101-116

Published 2000/2001.

1. Title: Convergence of the Eckmann and Ruelle algorithm for the estimation od the Lyapunov exponents.

Author(s): Mera, M.E.; Morán, Manuel

Source: Ergodic Theory and Dynamical Systems. Vol 20, 531-546

Published 2000. JCR: **Q2** (59/145)

1. Title: Lp()-estimation of tangent maps.

Author(s): Mera, M.E.; Morán, ManuelJournal of Mathematical Analysis and Applications. Vol 235, 454-469Ergodic Theory and Dynamical Systems. Vol 20, 531-546

Published 1999. JCR **Q2** (60/145), Q3 (85/338)

**C.2. Research projects and grants**

**International research projects**

**Title:** Stochastic Bioeconomic and Population Dynamics Modeling of Collapsed Fisheries.

**Funding agency:** NILS Science and Sustainability. European Project (ES07 – EEA Grants) (021-ABEL-CM-2013)

**Participating institutions:** UCM, Norwegian School of Economics (NHH)

**Project period**: 07/04/2014-30/11/2015

**Funding:** 65300€

**PI:** José María Maroto Fernández

**Number of participants:**  9

**National research projects**

**Title:** Stochastic calculus with applications to Social Sciences

**Funding agency:** MEC (MTM2009‐12672)

**Participating institutions:** UCM

**Project period:** 01/01/2010-01/01/2013

**Funding:** 48279 €

**PI:** Manuel Morán Cabré

**Number of participants:** 6

**Title:** Nonlinear stochastic equilibria: economic and environmental applications

**Funding agency:** MEC (MTM2006-02372)

**Participating institutions:** UCM

**Project period:** November 2006- November 2009

**Funding:** 54752€

**PI:** Manuel Morán Cabré

**Number of participants:** 7

**Title:** Dinámica y geometría de equilibrios estocásticos

**Funding agency:** MEC (BFM 2003-08204)

**Participating institutions:** UCM

**Project period:** 2004-2006

**Funding:** 45540€

**PI:** Manuel Morán Cabré

**Number of participants:** 7

**Title:** Separación de components deterministas en series temporales

**Funding agency:** MEC (BXX2000-0639)

**Participating institutions:** UCM

**Project period:** 2000-2003

**Funding:** 25250€

**PI:** Manuel Morán Cabré

**Number of participants:** 7

**Title:** Análisis de Correlaciones espaciales en series temporales

**Funding agency:** MEC (PB97-0301)

**Participating institutions:** UCM

**Project period:** 1998-2000

**Funding:** 13225€

**PI:** Manuel Morán Cabré

**Number of participants:** 3

**Title:** Análisis no lineal de series temporales

**Funding agency:** MEC (PB95-0193)

**Participating institutions:** UCM

**Project period:** 1996-1998

**Funding:** 6000€

**PI:** Manuel Morán Cabré

**Number of participants:** 3

**University research projects**

**Title:** Mejora del consejo científico para la gestión sostenible de recursos pesqueros sobreexplotados:dinámicas de transición y modelización bioecónomica de pesquerías estacionales.

**Funding agency:** Santander Bank-UCM**.** PR108/20-14.

**Participating institutions:** UCM, UAM, Norwegian School of Economics (NHH), Instituto Español de Oceanografía (IEO, Vigo) y Northwest Atlantic Fisheries Organization (NAFO). Santander Bank.

**Funding:** 12000€.

**Project period**: 03/2021-03/2022.

**PI**: José María Maroto.

**Number of participants:** 10

**Title:** Gestión sostenible de pesquerías: dinámica de transición y puntos de referencia límite (GSP).

**Funding agency:** Santander Bank-UCM**.** PR87/19-22582.

**Participating institutions:** UCM, UAM, Norwegian School of Economics (NHH), Instituto Español de Oceanografía (IEO, Vigo) y Northwest Atlantic Fisheries Organization (NAFO). Santander Bank.

**Funding:** 7900€.

**Project period:** 2020

**PI**: José María Maroto.

**Number of participants:** 10

**Title:** UCM-Santander bank project for the Applied Economics UCM group

**Funding agency:** Santander Bank-Complutense University

**Participating institutions:** UCM

**Project period:** 2014-2015

**Funding:** 1099€

**PI:** Manuel Morán Cabré

**Number of participants:** 8