Date of the CVA	20/02/2020

Section A. PERSONAL DATA

Name and Surname	David Gomez-Ullate Oteiza		
DNI/NIE/Passport		Age	
Researcher's identification number	Researcher ID	F-4932-2010	
	Scopus Author ID	6602128849	
	ORCID	0000-0002-6890-6584	

A.1. Current professional situation

Institution	Universidad de Cádiz		
Dpt. / Centre	Department of Computer Engineering / Higher School of Engineering		
Address			
Phone		Email	
Professional category	Distinguished Researcher	Start date	2018
UNESCO spec. code	120304 - Artificial intelligence; 120903 - Data analysis; 120911 - Stochastic theory and time series analysis; 120913 - Techniques of statistical inference; 120914 - Techniques of statistical prediction; 120915 - Time series		
Keywords	Artificial intelligence; Approximation theory; Special functions; Physics - Complex systems; Bussines data processing		

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Física Teórica y Física Matemática	Universidad Complutense de Madrid	2001
Licenciatura en Ciencias Físicas	Universidad Complutense de Madrid	1996
Diploma in Physics	University of Kent	1994

A.3. General quality indicators of scientific production

Num. research sexennia: 3 (last one in 2014) Num. Q1 papers: 25
Num. PhD supervised 1 (4 more in process)
Normalized impact: (2013-2017) 7.19
Total Num. citations 1174 (WoS), 1824 (G Scholar)
h-index 19 (WoS), 23 (G Scholar)
Num. Citations / year (2015-2019): 109 (WoS), 170 (G Scholar)

- Article "Rational extensions of the quantum harmonic oscillator and exceptional Hermite polynomials" won the Journal of Physics A Best paper prize in 2016, awarded by the Institute of Physics (U.K.)
- Article "An extended class of orthogonal polynomials defined by a Sturm–Liouville problem " was selected as New hot paper in Mathematics by Thomson Reuters in 2011.
- 4 Highly cited papers (belonging to 1% of most cited papers in their field)
- Plenary speaker at OPSFA conference in 2015, the main international conference in the field of orthogonal polynomials and special functions.

Section B. SUMMARY OF THE CURRICULUM

David Gómez-Ullate is Associate Professor of Applied Mathematics (ANECA certified as Full Professor) at Universidad Complutense de Madrid, currently on leave of absence as Distinguished Researcher at Universidad de Cádiz. He is also research member at the Institute of Mathematical Sciences (ICMAT) since 2013. He obtained his degree in Physics

from Universidad Complutense in 1996 and PhD at the same University in 2001. Since then, he has occupied full time research positions at Centre de Recherches Mathématiques and McGill University in Montréal, Università di Bologna (Italy) and Universitat Politecnica de Catalunya. He has been invited professor at Dalhousie University (Canada), University of Kent (United Kingdom) and Université de Lorraine (France).

He has authored 49 publications in JCR journals (29 of them Q1), 11 conference proceedings, 1 book chapter and 3 special issues. Five of his recent papers are recognised by WoS as highly cited papers (among the top 1% most cited papers in his area), and one of them received the 2016 Best Paper award from the Journal of Physics A. His normalized impact in the past 5 years is 7.19 and he is currently among the top 10 most cited mathematicians in Spain. He has 3 research sexennia from CNEAI.

His research interests span in a wide sense around mathematical modeling of real world problems: complex systems and simulation, data science and machine learning. His contributions in orthogonal polynomials and approximation theory have earned him international recognition, and he has been invited to deliver plenary talks & seminars at the main conferences in the field, including OPSFA, University of Edinburgh and University of Cambridge. He has organized a significant number of scientific activities in the past few years, including a thematic program at ICMAT, Doctorate Schools, workshops with industry and international conferences. He has been PI of research projects at the Spanish MINECO and the Royal Society, he has held a Ramón y Cajal research contract (2004-2009) and a Leonardo Scholarship from the BBVA Foundation (2015).

Prof. Gómez-Ullate has been active in pursuing transfer of technology activities with the industrial sector, and in particular he has led projects on the application of data science and machine learning for forecasting and decision making in precision marketing, fraud detection methods in electronic payments, projects in the aeronautical sector with Airbus D&S and natural language processing for legal databases. He is co-founder of ICMAT Datalab and has drafted the technology transfer strategy of the Institute for the second Severo Ochoa excellence project (2014-2019), where he also served in the Executive Comittee. In 2018 he founded UCA Datalab. Since 2014 he has supervised 8 trabajos Fin de Grado, 3 trabajos Fin de Master and 1 PhD. He is currently supervising 3 PhD students at ICMAT with FPU and FPI grants and one industrial PhD at UCA. He is associate professor at IE Business School and AFI, where he collaborates in master classes and doctorate programs.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

1 Clarkson, Peter A.; et al. 2020. Cyclic Maya diagrams and rational solutions of higher order Painleve systems STUDIES IN APPLIED MATHEMATICS. ISSN 0022-2526.
2 Angeles Garcia-Ferrero, Ma; Gomez-Ullate, David; Milson, Robert. 2019. A Bochner type characterization theorem for exceptional orthogonal polynomials JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS. 472. ISSN 0022-247X.
3 Gallego, Victor; et al. 2019. Assessing the effect of advertising expenditures upon sales: A Bayesian structural time series model APPLIED STOCHASTIC MODELS IN BUSINESS AND INDUSTRY. 35. ISSN 1524-1904.
4 Gomez-Ullate, David; Grandati, Yves; Milson, Robert. 2018. Durfee Rectangles and Pseudo-Wronskian Equivalences for Hermite Polynomials STUDIES IN APPLIED MATHEMATICS. 141. ISSN 0022-2526.
5 Gomez-Ullate, David; Grandati, Yves; Milson, Robert. 2018. Shape invariance and equivalence relations for pseudo-Wronskians of Laguerre and Jacobi polynomials JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL. 51. ISSN 1751-8113.

6 Duque Rodriguez, Juan; Gomez-Ullate, David; Mejia-Monasterio, Carlos. 2017. On the performance of blind-infotaxis under inaccurate modeling of the environment EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS. 226. ISSN 1951-6355.
7 Gomez-Ullate, D.; et al. 2016. Recurrence relations for exceptional Hermite polynomials JOURNAL OF APPROXIMATION THEORY. 204. ISSN 0021-9045.
8 Garcia-Ferrero, Ma Angeles; Gomez-Ullate, David. 2015. Oscillation Theorems for the Wronskian of an Arbitrary Sequence of Eigenfunctions of Schrodinger's Equation LETTERS IN MATHEMATICAL PHYSICS. 105. ISSN 0377-9017.
9 Duque Rodriguez, Juan; et al. 2014. A network of static chemical sensors for the localization of plant diseases.VII CONGRESO IBERICO DE AGROINGENIERIA Y CIENCIAS HORTICOLAS.
10 Gomez-Ullate, David; Grandati, Yves; Milson, Robert. 2014. Extended Krein-Adler theorem for the translationally shape invariant potentials JOURNAL OF MATHEMATICAL PHYSICS. 55. ISSN 0022-2488.
11 Duque Rodriguez, Juan; Gomez-Ullate, David; Mejia-Monasterio, Carlos. 2014. Geometry-induced fluctuations of olfactory searches in bounded domains PHYSICAL REVIEW E. 89. ISSN 2470-0045.
12 Suarez-Garcia, Pablo; Gomez-Ullate, David. 2014. Multifractality and long memory of a financial index PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS. 394. ISSN 0378-4371.
13 Gomez-Ullate, David; Grandati, Yves; Milson, Robert. 2014. Rational extensions of the quantum harmonic oscillator and exceptional Hermite polynomials JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL. 47. ISSN 1751-8113.
14 Duque Rodriguez, Juan; et al. 2014. Robustness of infotaxis with respect to variations and limited knowledge of the propagation of volatile organic compounds.VII CONGRESO IBERICO DE AGROINGENIERIA Y CIENCIAS HORTICOLAS.
15 Suarez-Garcia, Pablo; Gomez-Ullate, David. 2013. Scaling, stability and distribution of the high-frequency returns of the IBEX35 index PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS. 392. ISSN 0378-4371.

C.2. Participation in R&D and Innovation projects

1 Intelligent Generation of Sustainable Software - GENIUS Junta de Andalucía. Bernabé Dorronsoro Díaz. (Universidad de Cádiz). 01/01/2020-31/12/2023. 120.000 €.
2 Optimization and Machine Learning: a 2-way trip with applications Junta de Andalucía. David Gomez-Ullate Oteiza. (Universidad de Cádiz). 01/01/2020-31/12/2021. 95.000 €.
3 Ortogonalidad y aproximación: teoría y aplicaciones en Física Matemática Ministerio de Ciencia e Innovación. Investigación. Francisco Marcellán Español. (Universidad Carlos III de Madrid). 01/01/2019-31/12/2021. 41.000 €.
4 iSUN: Sistemas Inteligentes de Transporte Urbano Sostenible Ministerio de Ciencia e Innovación. Investigación. PAtricia Ruiz Villalobos. (Universidad de Cádiz). 01/01/2019-31/12/2021. 85.000 €.
5 Ortogonalidad, Teoría de la aproximación y aplicaciones en física matemática David Gomez-Ullate Oteiza. (Universidad Complutense de Madrid). 01/01/2016-31/12/2019. 30.613 €.
6 Juegos diferenciales estocásticos: rompiendo cincuenta años del paradigma Ministerio de Ciencia e Innovación. Antonio Gómez Corral. (INSTITUTO DE CIENCIAS MATEMATICAS). 01/01/2016-31/12/2017. 25.000 €.
7 Orthogonal Polynomials and Special Functions in Approximation Theory and Mathematical Physics Ministerio de Ciencia e Innovación. David Gomez-Ullate Oteiza. (INSTITUTO DE CIENCIAS MATEMATICAS). 15/09/2017-15/12/2017. 40.000 €.
8 Inteligencia artificial y ciencia de datos: aplicaciones a la detección de fraude Fundación BBVA. David Gomez-Ullate Oteiza. (Universidad Complutense de Madrid). 01/10/2015-31/10/2016. 40.000 €.
9 Complex networks, nonlinear dynamics, synchronization and multi-layered networks Ministerio de Ciencia e Innovación. Investigación. Stefano Boccaletti. (Universidad Politécnica de Madrid). 01/01/2013-31/12/2015.

10 Dinámica asociada a conexiones entre objetos invariantes, aplicaciones a astrodinamica Ministerio de Ciencia e Innovación. Investigación. Amadeu Delshams Valdés. (Universitat poltecnica de Catalunya). 01/01/2013-31/12/2015. 282.672 €.
11 Exceptional Orthogonal Polynomials and rational solutions of integrable equations Royal Society. Sara Lombardo. (Northumbria University). 01/10/2014-31/10/2015. 16.000 €.
12 Nonlinear Evolution Equations and Dynamical Systems Ministerio de Ciencia e Innovación. David Gomez-Ullate Oteiza. (Universidad Complutense de Madrid). 01/01/2009-31/12/2009. 9.000 €.

C.3. Participation in R&D and Innovation contracts

1 ATENEA: sistemas para soporte a ingeniería de fabricación basados en inteligencia artificial y ciencia de datos Airbus D&S. 01/04/2019-30/11/2019. 90.000 €.
2 Prediction of motion for drifting buoys in the ocean Satlink SL. 01/04/2019-P5M. 70.000 €.
3 Natural Language Processing with Deep Learning for retrieval of legal documents Quantum Analytics. 02/07/2018-P1Y. 60.000 €.
4 Consultoría matemática y machine learning para modelos de publicidad online Omnicom Media Group. 01/12/2016-P2Y. 35.000 €.
5 Técnicas de inteligencia artificial para la detección de fraude en medios de pago Evendor Engineering. 01/06/2015-P6M. 28.000 €.

C.4. Patents