CURRICULUM VITAE (maximum 4 pages)

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CV date	01/02/2021

Part A. PERSONAL INFORMATION

First and Family name	Francesc Andreu Rosselló Llompart		
ID number	43002750H	Age	59
Researcher numbers		Researcher ID	H-6504-2014
		Orcid code	0000-0003-2897-5398

A.1. Current position

Name of University/Institution	Universitat de les Illes Balears		
Department	Mathematics and Computer Science		
Address and Country	Ed. Anselm Turmeda, Campus de la UIB, 07122 Palma, Spain		
Phone number	971173202	E-mail	cesc.rossello@uib.es
Current position	Catedrático de Universidad	From	13/01/2010
Espec. cód. UNESCO	120300 - Computer Science		
Palabras clave	Discrete Mathematics, Algebraic structures, Computational biology, Bioinformatics,		

A.2. Education

PhD	University	Year
Mathematics	Univ. of Barcelona	1990

A.3. JCR articles, h Index, thesis supervised…

- I have been granted four Periods of Research Activity ("sexenios"), the last one in 2017.
- I have been granted four periods of the *Complemento Retributivo de Estímulo y Reconocimiento de la Actividad Investigadora* (2002 to 2025) and two periods of the *Complemento Retributivo de Estímulo y Reconocimiento de la Excelencia Investigadora* (2007-2012 and 2016-2021; between 2010 and 2016 they were not called) of the *Comunitat Autònoma de les Illes Balears* (CAIB).
- I have directed 2 PhD theses in the last 10 years and 3 more PhD theses before that, and I am currently the advisor of 1 PhD thesis
- Citations metrics:
  - According to the *Web of Science*, I have 816 citations and an h index of 13, and during the period 2016-2020 I have received an average of 85 citations/year.
  - According to *Google Scholar* (profile http://scholar.google.es/citations?user=-8zMh5EAAAAJ), I have 1774 citations and an h index of 22, and during the period 2016-2020 I have received an average of 154 citations/year.
- I have published 28 articles in the first quartile (Q1) according to the annual JCR classification

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

I was born in 1961. I have a degree in Mathematics (June 1984) and a PhD in Mathematics (April 1990), both from Univ. Barcelona, UB. After holding several positions in the UB (1984-1990) and in the Univ. Illes Balears, UIB (1990-2009), I am currently *Catedrático de*

Universidad in the Dept. of Mathematics and Computer Science of the UIB since January 2010.

Since 1994, I have always been the Principal Investigator of my research group, which has had several incarnations; currently, it is the research group in Computational Biology and Bioinformatics of the Health Research Institute of the Balearic Islands (IdISBa) and the UIB.

The fields in which I have worked are the following:

- *Enumerative algebraic geometry* (1986-1990). It is the time of my PhD thesis, in which I developed new techniques to solve enumerative problems within the framework of Hilbert's 15th problem.
- *Algorithms and complexity in algebraic geometry* (1990-1992). It is my postdoctoral period. The main achievement was an algorithm to compute the topology of a planar real algebraic curve that is still the most efficient.
- *Algebraic methods in programming theory* (1992-2002). The main achievement of our group in this field was the generalization to partial and total algebras of the double and simple pushout approaches to the transformation of graphs, which allowed us to use them in the joint specification of abstract data types and programs.
- *Computational biology and bioinformatics* (since 2001). In this field I have worked in the algebraic modeling of RNA structures and proteins, in the alignment and comparison of RNA structures and proteins, in the design and analysis of artificial chemistries, in the analysis of biochemical networks and in the development of comparison, reconstruction and analysis techniques for phylogenetic trees and networks. The achievements that I want to highlight in this field are the development of techniques for the comparison of phylogenetic trees and networks and the introduction of new phylogenetic tree shape indices, which have placed our research group in a leading international position in this field.

My plan in the short/medium term is to deepen our understanding of the stochastic processes that underlie the evolution of genes and species; to develop techniques for the analysis and comparison of microbial communities from metagenomic samples; and to apply big data analysis techniques on biological and social problems.

I have been the Principal Investigator of 14 research projects funded by the Spanish Government, and participated in another 12 funded by different national and international organizations. In addition, I have been Responsible for 4 teaching innovation projects funded by the UIB (and participated in 7 others) and 2 development and cooperation projects funded by the UIB and the CAIB.

I have directed 15 MSc thesis (or equivalent) and 5 PhD theses. I have published 8 books, between textbooks and popular science books, and more than 100 papers in journals, book chapters, conference proceedings, etc., of which more than 50 are articles in journals with impact factor. In total, I have published with more than 60 co-authors.

I have held different academic and management unipersonal positions in the UIB for a total of more than 8.5 years, including being the Director of the Official Master in Mathematics (10/2008-09/2010) and the Head of Studies of the Mathematics Degree (06/1999-06/2003).

Part C. RELEVANT MERITS

C.1. Publications (including books)

A Alcalá, R Alberich, M Llabrés, F Rosselló, G Valiente (2020) AligNet: Alignment of protein-protein interaction networks. *BMC bioinformatics* 21:265

T. M. Coronado, A. Mir, F. Rosselló, L. Rotger (2020). On Sackin's original proposal: the variance of the leaves' depths as a phylogenetic balance index. *BMC bioinformatics* 21:154.

T. M. Coronado, M. Fischer, L. Herbst, F. Rosselló, K. Wicke (2020). On the minimum value of the Colless index and the bifurcating trees that achieve it. *Journal of Mathematical Biology* 80: 1993-2054.

T.M. Coronado, A. Mir, F. Rosselló, G. Valiente (2019). A balance index for phylogenetic trees based on rooted quartets. *Journal of Mathematical Biology* 79: 1105-1148

A. Mir, F. Rosselló, L. Rotger (2018). Sound Colless-like balance indices for multifurcating trees. PLOS ONE 13:e0203401

G. Cardona, J. C. Pons, F. Rosselló (2015). A reconstruction problem for a class of phylogenetic networks with lateral gene transfers. *Algorithms for Molecular Biology* 10:28

G. Cardona, A. Mir, F. Rosselló, L. Rotger, D. Sánchez (2013). Cophenetic metrics for phylogenetic trees, after Sokal and Rohlf. *BMC bioinformatics* 14:3

A. Mir, F. Rosselló, L. Rotger (2013). A new balance index for phylogenetic trees. *Mathematical Biosciences* 241:125-136.

J. Flexas et al; 16/11 (2013). Diffusional conductances to CO2 as a target for increasing photosynthesis and photosynthetic water-use efficiency. *Photosynthesis Research* 117:45-59 (It was identified by ISI as "Highly Cited" in August 2017)

G. Cardona, A. Mir, F. Rosselló (2012). The expected value under the Yule model of the squared path-difference distance. *Applied Mathematics Letters* 25:2031–2036.

C.2. Research projects and grants

Title: Desarrollo de estrategias -Ómicas para desvelar pangenomas, coevolución vírica y adaptación a los extremos de concentración salina- SP4 - MICROMATES (PGC2018-096956-B-C43) **Funding entity**: Ministerio de Ciencia, Innovación y Universidades; **PI**: Francesc Rosselló; Mercè Llabrés (UIB) **Years**: 2019-2021; **Total amount**: 79.860 €; **Type of participation**: Principal investigator.

Title: Aplicaciones bioinformáticas en filogenética, metagenómica, biologia de sistemas y genómica del cáncer (DPI2015-67082-P); **Funding entity**: Ministerio de Ciencia e Innovación; **PI**: Francesc Rosselló, Mercè Llabrés (UIB); **Years**: 2016-2019; **Total amount**: 52.514 €; **Type of participation**: Principal investigator.

Title: Grafos en bioinformática; **Funding entity**: Obra Social La Caixa; **PI**: Francesc Rosselló (UIB); **Years**: 2015-2016; **Total amount**: 5.000 €; **Type of participation**: Principal investigator.

Title: Grafos en biologia computacional (MTM2009 07165); **Funding entity**: Ministerio de Ciencia e Innovación; **PI**: Francesc Rosselló (UIB); **Years**: 2010-2014; **Total amount**: 54.692 €; **Type of participation**: Principal investigator.

Title: Creación de una red temática en computación biomolecular y biocelular (TIN2008-04487-E/TIN); **Funding entity**: Ministerio de Ciencia e Innovación; **PI**: Mario Pérez Jiménez (U. Sevilla) ; **Years**: 2009-2011 (renewed successively, under different titles and project numbers until 2019); **Total amount**: 33.600 €; **Type of participation**: Researcher, coordinator of the UIB node.

C.5. Other merits

Co-author of the R package *CollessLike*, available at the CRAN (https://cran.r-project.org/web/packages/CollessLike/index.html)

Co-author of MiriadaX's MOOC *AprendeR: Introducción al tratamiento de datos con R y RStudio* (https://miriadax.net/web/aprende-r-rstudio), with around 25,000 enrolled students and currently in its second edition

Assessor of the *Agència de Gestió d'Ajuts Universitaris i de Recerca de la Generalitat de Catalunya* (AGAUR) since 2008.