

CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	MARIA HENAR		
Family name	MIGUELEZ GARRIDO		
Gender (*)	FEMALE	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number	06569275S		
e-mail	mhmiguel@ing.uc3m.es		
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-5227-1425	

(*) Mandatory

A.1. Current position

Position	PROFESSOR		
Initial date	26/11/2012		
Institution	UNIVERSIDAD CARLOS III DE MADRID		
Department/Center	DEPARTMENT MECHANICAL ENGINEERING	AVDA. UNIVERSIDAD 30, 28911, LEGANES, MADRID	
Country	SPAIN	Teleph. number	916249402
Key words	MANUFACTURING, MATERIALS MECHANICS, MODELLING		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
Oct 1994-Oct 1998	PREDCTORAL LECTURER(UC3M, SPAIN)
Oct 98-Oct 2002	PREDCTORAL LECTURER(UC3M, SPAIN)
Oct 2002-Nov 2012	ASSOCIATE PROFESSOR (UC3M, SPAIN)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Aeronautical Engineer	UNIVERSIDAD POLITÉCNICA DE MADRID	1994
PhD	UNIVERSIDAD CARLOS III DE MADRID	1998

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

H. Miguélez is professor at the Department of Mechanical Engineering in University Carlos III of Madrid (since 2012). She is Aeronautical Engineer (UPM 1994) and PhD (UC3M 1998), with 30 years of experience in advanced manufacturing technologies.

She has been coordinator of the research team in Manufacturing Technologies and Mechanical Design since the origin of the team in 2005 (currently composed of 2 professors, 5 assistant professors, 2 postdoc and 10 predoctoral). She has led as **PI in 12 competitive research projects** (8 national, 3 regional CAM, 1 international H2020) being responsible for the initiation of all research lines currently active in the team. She has collaborated in several contracts with industry leading **8 industrial projects** with stable relationships with companies involved in the projects (AIRBUS; FECSA; COHEMO; APRIM).

H. Miguélez has published more than **80 articles** in journals included in JCR in collaboration with national and international researchers. Most works have focused on manufacturing technologies, including advanced machining and numerical modelling of cutting. Recently new research lines have been developed focused on biomechanical and design and testing of protections for defence and security sectors. She has directed **11 PhD** works and is currently directing 4 more. All PhD have continued successful careers, most of them in academia.



She has been responsible for research management and researcher evaluation in several institutions since 2012 (ANEP, UNIBASQ, DEVA). She has also experience in management at UC3M staff as vice chancellor (2007-2011) and dean of center (2011-2023).

Indicators:

- a) 4 six-year term of investigation recognized (1996-2019), 1 six-year term of knowledge transfer (2013-2018) recognized.
- b) Thesis supervised since 2010: 8
- c) Total number of citations (Scopus): about 3000. Average number of citations during the last five years 370/year, 122 documents in Scopus, **h35**
- b) >80 papers in JCR, about 70% in the first quartile (Q1).

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

C.1. Publications (*see instructions*)

More than 80 papers in JCR, 70% in the first quartile (Q1), 10 articles in high impact journals in the last five years are listed below:

C. Domínguez-Monferrer, A. Guerra-Sancho, A. Caggiano, L. Nele, M.H. Miguélez, J.L. Cantero., Multiresolution Analysis for Tool Failure Detection in CFRP/Ti6Al4V hybrid stacks drilling in aircraft assembly lines, *Mechanical Systems and Signal Processing*. 206 (2024), 110925. 1–20

Calvo, J.V., Quiñonero-Moya, A.R. Feito, N., Miguélez, M.H. Giner, E., Influence of distributed out-of-plane waviness defects on the mechanical behavior of CFRP laminates, *Composite Structures*, 2023, 323, 117498

Juan Fernández-Pérez, Carlos Domínguez-Monferrer, María Henar Miguélez, José Luis Cantero, Analysis of Tool Wear and Hole Delamination for Large-Diameter Drilling of CFRP Aircraft Fuselage Components: Identifying Performance Improvement Drivers and Optimization Opportunities, *J. Manuf. Mater. Process*. 7, 76 (2023), 1–16

D. Gomez-García, A. Díaz-Alvarez, George Youssef, Henar Miguélez, J. Díaz-Alvarez, Machinability of 3D printed peek reinforced with short carbon fiber, *Composites Part C: Open Access*, Volume 12, October 2023, 100387

C. Domínguez-Monferrer, J. Fernández-Pérez, R. De Santos, M.H. Miguélez, J.L. Cantero, Machine learning approach in non-intrusive monitoring of tool wear evolution in massive CFRP automatic drilling processes in the aircraft industry, *Journal of Manufacturing Systems*. 65 (2022), 622–639

Fernández-Pérez, J., Díaz-Álvarez, J., Miguélez, M.H., Cantero, J.L. Combined analysis of wear mechanisms and delamination in CFRP drilling (2021) *Composite Structures*, 255, art. no. 112774, DOI: 10.1016/j.compstruct.2020.112774.

Infante-García, D., Giner, E., Miguélez, H., Abdel Wahab, M., Numerical analysis of the influence of micro-voids on fretting fatigue crack initiation lifetime (2019) *Tribology International*, pp. 121-129.

Infante-García, D., Qian, G., Miguélez, H., Giner, E., Analysis of the effect of out-of-phase biaxial fatigue loads on crack paths in cruciform specimens using XFEM (2019) *International Journal of Fatigue*, 123, pp. 87-95.

Juan Fernández-Pérez, José Luis Cantero, José Díaz-Álvarez, Henar Miguélez, Hybrid composite-metal stacks drilling with different minimum quantity lubrication levels, *Materials*. 12 (3) (2019), 448

Díaz-Álvarez, A., Díaz-Álvarez, J., Santiuste, C., Miguélez, M.H., Experimental and numerical analysis of the influence of drill point angle when drilling biocomposites, (2019) *Composite Structures*, 209, pp. 700-709.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

About 25 contributions in congresses in the last 5 years, several recent oral presentations in conferences are listed below:

Antonio Guerra-Sancho, Carlos Domínguez-Monferrer, María Henar Miguélez, José Luis Cantero, Catastrophic Tool Failure Detection in Aeronautical Industrial Drilling Systems Based on Spindle Power Consumption Analysis, 10th Manufacturing Engineering Society International Conference, Sevilla (España), 2023

C. Domínguez-Monferrer, A. Guerra-Sancho, A. Caggiano, L. Nele, M.H. Miguélez, J.L. Cantero, Tool Failure Detection in CFRP/Ti6Al4V hybrid stacks drilling using Discrete Wavelet Transform, 17th CIRP Conference on Intelligent Computation in Manufacturing Engineering, Nápoles (Italia), 2023

Raúl de Santos García, María José Gómez Silva, Carlos Domínguez Monferrer, María Henar Miguélez Garrido, José Luis Cantero Guisández, Aplicación de redes neuronales convolucionales a la monitorización del nivel de desgaste de herramientas en sistemas industriales de taladrado, XV Congreso Iberoamericano de Ingeniería Mecánica, Madrid (España), 2022

Antonio Guerra Sancho, Juan Fernández Pérez, María Henar Miguélez Garrido, José Luis Cantero Guisández, José Díaz Álvarez, Control de altura de avellanado en procesos de taladrado de componentes estructurales aeronáuticos mediante el análisis de fuerzas de mecanizado, 8th International Engineering, Sciences and Technology Conference (IESTEC), Panamá (Panamá), 2022

C.Domínguez-Monferrer, J.Fernández-Pérez, R. De Santos, M.H. Miguélez, J.L.Cantero, CFRP drilling process control based on spindle power consumption from real production data in the aircraft industry, 55th CIRP Conference on Manufacturing Systems, Lugano (Suiza), 2022

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

PI in the 12 competitive projects, she has been responsible for managing tasks, scientific objectives definition and execution, PhD formation, and transference to industry; some recent projects are listed below:

DIGITDRILL-Digitalization of industrial drilling process. Funding entity: Ministry of Science and Innovation. Project PDC2021-121368- C21. From: December 2021 to June 2024. Grant amount: 69,000€. PI1/PI2: M^a Henar Miguélez Garrido/José Díaz Álvarez.

Analysis of defects in fibre reinforced laminates due to manufacturing processes and effect on fatigue behaviour. Funding entity: Ministry of Science and Innovation. Project PID2020-118480RB-C22. From: September 2021 to August 2024. Grant amount: 123,420€. PI1/PI2: M^a Henar Miguélez Garrido/José Luis Cantero Guisández.

Drilling of hybrid CFRPs/Ti components and tolerance to damage due to machining during the in-service behavior of aeronautical structural joints. Funding entity: Ministry of Economy, Industry and Competitiveness. Project DPI2017-89197-C2-1-R. From: January 2018 to December 2020. Grant amount: 102,850€. PI1/PI2: M^a Henar Miguélez Garrido/José Díaz Álvarez.

Enhanced Neutralisation of explosive Threats Reaching Across the Plot, H2020 Secure Societies programme (H2020-SEC-2016-2017-1), IP in Universidad Carlos III de Madrid, H. Miguélez, 1/01/2017- 31/12/2019, (180.798 €)

Desarrollo de un nuevo blindaje ligero mediante una metodología combinada experimental-numérica, CAM. CONSEJERÍA DE EDUCACIÓN E INVESTIGACION, 2019-2022, IP H. Miguélez (85.300 €)

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any

She led 8 industry contracts being responsible for the project management, technical objectives definition, execution and knowledge transference and implementation in industry.

Project Title: Drilling process improvement based on data analysis step 3. Funding entity: AIRBUS OPERATIONS, S.L. Participating entities: Carlos III University. From July 2023 to January 2024. Contract amount: 50000€. PI1/PI2: M^a Henar Miguélez Garrido/José Luis Cantero.

Project Title: Drilling process improvement based on data analysis step 2. Funding entity: AIRBUS OPERATIONS, S.L. Participating entities: Carlos III University. From May 2022 to December 2022. Contract amount: 82280€. PI1/PI2: M^a Henar Miguélez Garrido/José Luis Cantero.

Project Title: Drilling process improvement based on data analysis. Funding entity: AIRBUS OPERATIONS, S.L. Participating entities: Carlos III University. From December 2019 to April 2021. Contract amount: 104.466,85€ PI1/PI2: M^a Henar Miguélez Garrido/José Luis Cantero.

Diseño y fabricación de protecciones avanzadas de cabeza y torso teniendo en cuenta efectos biomecánicos y perspectiva de género (PROTEC BIO GEN), Junio 2020-Junio 2022, IP M.H. Miguélez / J.A. Loya (90.284 €).

C.5. Patents

MARIA CARMEN VAZQUEZ GARCIA; ALBERTO TAPETADO MORALEDA; MARIA HENAR MIGUELEZ GARRIDO; JOSE DIAZ ALVAREZ, P201530546, Pirómetro de fibra óptica a dos colores, 22/04/2015, UNIVERSIDAD CARLOS III DE MADRID.

The patent is the result of the work in a competitive project allowing the measurement of temperature during aggressive machining of thermoresistant alloys.

C.6 Research management

18 years of experience in evaluation of research projects, knowledge transfer to industry, researcher activity, 8 years in coordination positions.

- President of committee for research evaluation in Technology Area in UNIBASQ (País Vasco) 2021 - 2024
- Member of plenary committee in CNEAI (2019-2013)
- Coordinator of Production and Construction Area in DEVA (Andalucía) 2016-2020
- Coordinator of sub-area Manufacturing within Mechanical, Naval and Aeronautical Engineering Area, ANEP 2012-2017
- Evaluation in Ramon y Cajal/Juan de la Cierva programs 2012-2017
- President of committee in Technology Area in UNIBASQ (País Vasco) 2016 - 2019.
- President of engineering committee Fundación BBVA program Leonardo 2018 -2023
Member of the committee since 2014.
- Evaluation in first call for recognition of six-year term knowledge transfer (2019), CNEAI
- Evaluation in programs ACADEMIA and FPU for agency ANECA
- Evaluation of university educational programs for ACSUCYL
- Evaluation of training programs Fundación la Caixa
- Member of the ethical committee at UC3M since 2018

Member of scientific societies, scientific committees in conferences and other academic and research activities.

C.7 University management

Vice chancellor for students (2007-2011) in UC3M
Dean of University Center 2011-2023 in UC3M