



## 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

|                |            |
|----------------|------------|
| <b>CV date</b> | 07/09/2022 |
|----------------|------------|

|  |                     |   |            |
|--|---------------------|---|------------|
| First name                                     | Pilar               |   |            |
| Family name                                    | Suárez Marcelo      |   |            |
| Gender (*)                                     | Female              | Birth date (dd/mm/yyyy)   | 11/10/1963 |
| Social Security, Passport, ID number           | 08**717**           |   |            |
| e-mail   | psuarez@unex.es     | URL Web:<br><a href="https://www.unex.es/conoce-la-unex/centros/eii/">https://www.unex.es/conoce-la-unex/centros/eii/</a> |            |
| Open Researcher and Contributor ID (ORCID) (*) | 0000-0003-3752-6228 |   |            |

(\*) Mandatory

#### A.1. Current position

|                   |  |                |              |
|-------------------|--|----------------|--------------|
| Position          | Full professor                             |                |              |
| Initial date      | 27/10/2021                                 |                |              |
| Institution       | University of Extremadura                  |                |              |
| Department/Center | School of Industrial Engineering           |                |              |
| Country           | Spain                                      | Teleph. number | +34924289643 |
| Key words         | Electrical Applications of Superconductors |                |              |

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

| Period                   | Position/Institution/Country/Interruption cause |
|--------------------------|---|
| 30/10/1986 – 14/01/1988  | PROFESOR - ADMINISTRACIÓN LOCAL (AYUNTAMIENTO)  |
| 15/01/1988 -- 30/06/2008 | PROFESOR TITULAR ESCUELAS UNIVERSITARIAS        |
| 01/07/2008 - 26/10/2020  | PROFESOR TITULAR DE UNIVERSIDAD                 |

#### A.3. Education

| PhD, Licensed, Graduate                  | University                | Year |
|--|---------------------------|------|
| Professor from University of Extremadura | University of Extremadura | 2020 |
| PhD from University of Extremadura       | University of Extremadura | 1993 |
| Degree in Physical Science               | University of Extremadura | 1986 |

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

She is co-founder of the “Benito Mahedero” Research Group on Electrical Applications of Superconductors at the University of Extremadura (hereinafter, UEx) as well as the “Benito Mahedero” Laboratory for Electrical Applications of Superconductors at UEx, which has measurement equipment specialized in this topic. She is co-author of more than two dozen articles indexed in JCR, appearing as first author in almost half of them. She has participated in 11 research projects, 7 of them in the last 10 years. She has presented more than 50 communications and papers at international conferences in the field of applied superconductivity. Regarding the interests and scientific-technical objectives in the medium / long term of the research line on "Electrical Applications of Superconductors", work is being carried out on several fronts. On the one hand, we are working on the design, construction and



testing of a superconducting fault current limiter (SFCL) with two stages, one inductive and the other resistive, as well as its adaptation to distributed generation environments. The modular characteristic of this SFCL allows scaling the level of protection current to higher values than those that can be obtained in our laboratory. In this sense, the available test bench has been updated to be three-phase and allow faults of up to 2000A, both symmetrical and asymmetric. On the other hand, the study of superconducting magnetic storage systems (SMES) has begun, both in applied superconductivity forums but also in energy storage forums in general, as well as in terms of the quality of the electricity supply to the faults up to 2000A, symmetric and asymmetric. In the storage section, there is also an alternative for the application of superconducting supports (superconducting magnetic levitation), to flywheels for storage of kinetic energy (SLF, from Superconductor Levitation Flywheels), which will be studied laterally for its application individually or in combination with SMES in superconductor-based hybrid storage systems.

She has collaborated in different activities for the dissemination of scientific culture within the Autonomous Community of Extremadura, highlighting her collaboration in the European Night of Research for a better future (MSCA-NIGHT, number 633243 PNIGHT-GA-2013-609784) from 2012 to 2019 and in the FECYT project entitled "Female science project, women with history" in 2019. In addition, she is the author of several popular science publications. She has supervised 3 doctoral theses, one of them with mention European Doctor and Extraordinary Doctorate Award.

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

### **C.1. Publications** (see instructions)

Roberto A. H. de Oliveira; João Murta-Pina; María Belén Rivera; Alfredo Álvarez; Stanimir Valtchev; Anabela G. Pronto; Pilar Suárez. "Effects of Noncharacteristic Harmonics on AC Losses of High-Temperature Superconducting Coils". IEEE Trans. On Power Electronics (36) 12, 2021. JCR: 6,153; Q1 (88.83).

Jaime Gómez, Belén Pérez, Pilar Suárez, Alfredo Álvarez, and Belén Rivera. "Theoretical and Experimental Studies of SMES Configurations for Design Optimization". IEEE Trans. On App. Supercond., (31) 5, 2021. JCR: 1,704; Q3 (31.32).

Alfredo Álvarez, Pilar Suárez, Belén Pérez and Laura García. "Coated superconducting tape model based on distribution of currents between the tape layers. Computing implementation". IEEE Trans. On App. Supercond., (28) 4, 2018. JCR: 1,583; Q3 (78/148).

José M. Ceballos, Alfredo Álvarez, Pilar Suárez, Nuno Amaro, and Belén Pérez. "Device for Measuring the Thermal Cycling Degradation in 2G Tapes for Electrical Power Applications" IEEE Trans. On App. Supercond., VOL. 25, NO. 3, 2015. JCR: 1,092; Q3 (146/257).

Pilar Suárez, Alfredo Álvarez, José M. Ceballos, and Belén Pérez. "Loss and Transition Studies of Shunted Free-Stabilized YBCO Tape for SFCL Applications", IEEE Trans. On App. Supercond., VOL. 21, NO. 3, 2011, 1267-1270. JCR: 1,041; Q2 (120/245). Citas: 3

Pilar Suárez, Alfredo Álvarez, José M. Ceballos, and Belén Pérez. "An Experimental Study of the Ferromagnetic Loss in 2G YBCO Tapes", IEEE Trans. On App. Supercond., VOL. 20, NO. 5, 2010, 2327-2330. JCR: 1,035; Q2 (120/247).

### **C.2. Conferences**

**Oral contribution:** Roberto Oliveira, João Murta-Pina, Anabela Pronto, Henrique Simas, Miguel Teixeira, Isabel Catarino, João Rosas, Masoud Ardestani, Alfredo Álvarez, Pilar Suarez, Belén Rivera, Belén Perez. "A Data Driven Methodology for Modeling Losses in HTS



*Power Systems*". 15<sup>th</sup> European Conference on Applied Superconductivity. Moscow, Russia. September 2021.

**Poster:** João Pinto, Roberto Oliveira, Fábio Gregório, João Murta-Pina, Anabela Pronto, Masoud Ardestani, Xavier Granados, Alfredo Álvarez, Pilar Suárez, Belén Rivera, Belén Pérez. "*A Highly-Flexible Electromechanical Drive Integrating Electronic Poles Variation and HTS Coated Conductors Based Motors*". 15<sup>th</sup> European Conference on Applied Superconductivity. Moscow, Russia. September 2021.

**Oral contribution:** Alfredo Álvarez, Pilar Suárez, Belén Pérez and Belén Rivera. "Study of the magnetic shielding of hollow cylindrical screens made with superconducting tape". 2020 Applied Superconductivity Conference. Tampa, Florida. November 2020.

**Poster:** Jaime Gómez, Belén Pérez, Pilar Suárez, Alfredo Álvarez, Belén Rivera. "*Theoretical and experimental studies of SMES configurations for design optimization*". 2020 Applied Superconductivity Conference. Tampa, Florida. November 2020.

**Poster:** Belén Pérez, Pilar Suárez, Alfredo Álvarez, João Murta-Pina, Anabela Pronto, Roberto Oliveira. "*Losses estimate in a new concept of inductive-resistive SFCL*". 14<sup>th</sup> European Conference on Applied Superconductivity. Reino Unido. September 2019.

**Poster:** Alfredo Álvarez, Pilar Suárez and Belén Pérez. "*Study and modeling of superconducting tape non-linearity based on hysteresis functions*". 2018 Applied Superconductivity Conference. Seattle, Washington. October 2018.

**Poster:** Pilar Suárez, Alfredo Álvarez and Belén Pérez. "*Comparison between superconducting bulks and coated conductor coils for magnetic levitation applications*". 2018 Applied Superconductivity Conference. Seattle, Washington. October 2018.

**Oral contribution:** Alfredo Álvarez, Pilar Suárez, Belén Pérez, Joao Murta-Pina. "*Computing implementation of stabilized HTS tape model based on distribution of current between the tape layers*". 6<sup>th</sup> International Workshop on Numerical Modelling of High Temperature Superconducting. Caparica, Portugal. June 2018.

**Poster:** Alfredo Álvarez, Pilar Suárez, Belén Pérez and Laura García. "*Coated superconducting tape model based on distribution of currents between the tape layers*". 13<sup>th</sup> European Conference on Applied Superconductivity. Ginebra, Suiza. September 2017.

### **C.3. Research projects**

IB18076. Improvement of the Modular Inductive-Resistive Superconductor Fault Current Limiter for its integration in Distributed Generation Systems.

Entity: Government of Extremadura

Dates: 09/02/2019 09/02/2022      Amount: € 103.773

PI: Alfredo Álvarez García      N° researchers: 4

ENE2012-36479. Adaptation of the modular inductive-resistive SFCL for its integration in distributed generation systems. Scenario review.

Entity: Ministry of Economy and Competitiveness

Dates: 01/01/2013 12/31/2015      Amount: € 28.080

PI: Belén M<sup>a</sup> Pérez Caballero      N° researchers: 5



9191797P. Modeling of a superconducting fault current limiter for distributed generation systems with renewable energies.

Entity: University of Extremadura

Dates: 24/10/2011 24/10/2012 Amount: € 6.000

PI: José M. Ceballos Martínez N° researchers: 4

GR10150. Helps research groups

Entity: Government of Extremadura

Dates: 31/12/2010 31/12/2014 Amount: € 21.978

PI: Alfredo Álvarez García N° researchers: 4

ENE2007-67426. Superconducting limiter for quality improvement in systems FACTS

Entity: Ministry of Science and Technology

Dates: 10/10/07 30/09/2011 Amount: € 4.400

PI: Alfredo Álvarez García N° researchers: 4

#### **C.4. Contracts, technological or transfer merits**

Patent: INDUCTIVE-RESISTIVE MODULAR SUPERCONDUCTOR SHORT-CIRCUIT CURRENT LIMITING DEVICE WITH DOUBLE MAGNETIC FIELD TRANSITION.

Modular inductive-resistive short-circuit current limiting device with double magnetic field transition.

Type: Invention Patent. Patent / Invention Summary. Application Number: P201031147.