

PERSONAL INFORMATION



Mercedes Medrano



Sex | Date of birth | Nationality Spanish

POSITION

Senior engineer at the Fusion National Laboratory, CIEMAT, Spain

TYPE OF BUSSINESS

Fusion experimental devices: design and manufacturing of components and systems

WORK EXPERIENCE

*2018-present*

Engineering Unit Group Leader at the National Fusion Laboratory.

Technical coordinator (CIEMAT) of design and R&D activities within the frame contract F4E-GRT-1146: Completion of the design of Equatorial Wide Angle Viewing System (EP-WAVS) in EP12 and post-design technical support.

Technical coordinator (CIEMAT) of design and R&D activities within the frame contract F4E-FPA-407 (DG): SG04: Development of the design and prototyping of Framework Partnership Agreement for Diagnostic Development and Design: Equatorial Visible/Infrared Wide Angle Viewing System (WAVS for ITER).

*2007-2017*

Design and Manufacture of the Cryostat for the Japanese Superconducting Tokamak, JT-60SA in the frame of the Broader Approach

- Follow up of the industrial contracts for the manufacture of the cryostat base and cryostat vessel body

Responsible for QA activities at the National Fusion Laboratory

- F4E-FPA-407 for diagnostic development and design: Equatorial visible/infrared wide angle viewing system.
- F4E-FPA-375 for diagnostic development and design: Plasma Position Reflectometry.
- EU TBM Consortium, F4E-2008, F4E-2008-GRT-09 (PNS- TBM): design and development of the European Test Blanket Modules (TBM) Systems.

*2001-2006*

Responsible for monitoring the manufacture of the superconductive coils support ring structure for the German stellarator W-7X (at Equipos Nucleares, ENSA).

Technical Responsible for EFDA tasks

- Study of power conversion cycles for DEMO within the framework of the DEMO Conceptual Studies.
- Development of fabrication control methods for the ITER divertor.
- ITER NB remote maintenance system design.
- Design and thermo-mechanical analysis of the blanket modules attachments for the Helium – Cooled Lithium-Lead reactor concept within the framework of the Fusion Power Plant Conceptual Studies.

QA and licensing documentation responsible for preparation of the Spanish candidature for the ITER site in Vandellós.

- 1990-2001 Engineering activities at the Fusion National Laboratory for the design and construction of the Spanish stellarator TJ-II
- Detailed design and manufacturing follow up of the TF coils system.
  - Assembly and commissioning of TF coils in TJ-II.
  - Design, manufacturing and commissioning of TJ-II cooling systems for the coils (TF, PF, HC) and heating systems (ECRH, NBI)

Operation of TJ-II for its scientific exploitation.  
Responsible of safety at TJ-II device.

- 1989-1990 Design of cogeneration systems for petrochemical plants

## EDUCATION AND TRAINING

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- 1990 **Master degree in Industrial Engineering : Energy techniques**  
*Higher technical school of industrial engineering*  
*Polytechnic University of Madrid, Spain*
- 1995 **PhD course in Nuclear safety**  
*Higher technical school of industrial engineering*  
*Polytechnic University of Madrid, Spain*

## ADDITIONAL INFORMATION

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Languages Mother tongue: Spanish  
English use: Upper intermediate in understanding, speaking and writing

### Publications

- **Design overview of ex-vessel components for the Wide Angle Viewing System diagnostic for ITER Equatorial Port 12.** *Fusion Engineering and Design. 168 (2021)*
- **Optical design of ex-vessel components for the Wide Angle Viewing System diagnostic for ITER.** *Fusion Engineering and Design. 168 (2021)*
- **Assembly and final dimensional inspection at factory of the JT-60SA Cryostat Vessel Body Cylindrical Section.** *Fusion Engineering and Design (2019)*
- **Pre-assembly and dimensional inspection at factory of JT-60SA Cryostat Vessel Body Cylindrical Section.** *Fusion Engineering and Design 124 (2017).*
- **Manufacturing of the JT-60SA Cryostat Vessel Body Cylindrical Section.** *Fusion Engineering and Design 123 (2017).*
- **Manufacturing of JT-60SA Cryostat Base.** *Fusion Engineering and Design (2013).*
- **Structural analysis of the JT-60SA cryostat vessel body.** *Fusion Engineering and Design (2013).*
- **Structural analysis of the JT-60SA cryostat base.** *Fusion Engineering and Design (2011).*
- **Design of an overhead crane for the ITER NB cell remote handling maintenance**

- operations.** *Fusion Engineering and Design (2009).*
- **Feasibility study of the cut and weld operations by RH on the cooling pipes of ITER NB components.** *Fusion Engineering and Design (2009).*
  - **Thermal and hydraulic analysis of the cooling system for the ITER equatorial port plugs.** *Fusion Engineering and Design (2009).*
  - **Ultrasonic techniques for quality assessment of ITER Divertor plasma facing component.** *Fusion Engineering and Design (2009).*
  - **Power conversion cycles study for He-cooled reactor concepts for DEMO.** *Fusion Engineering and Design (2007).*
  - **Power plant conceptual studies in Europe.** *Nuclear Fusion (2007).*