

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

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

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).*