



## Researcher in the field of Electric Machines and Mechatronic Systems (M/F)

*Location :* Rennes (35), France

*Web site :* <http://www.fr.mitsubishielectric-rce.eu/>

*Job reference:* PES\_PERM\_062022

*Contract :* permanent

### Context and description:

MITSUBISHI ELECTRIC is one of the leading manufacturers of power electronics related products from components such as semiconductor power devices to systems such as HVDC. As MITSUBISHI ELECTRIC Group's subsidiary, MITSUBISHI ELECTRIC R&D CENTRE EUROPE includes a research division specialised in power electronics which perform fundamental research in the fields of integration and reliability of power electronic systems.

The research division, located in Rennes (France – Bretagne [35]), is looking for a researcher specialized in AC machines and mechatronic systems, in particular their control and modelling with the following duties:

- In close **collaboration** with academic partners, conduct **research** in the domain of control strategies (**Sensorless, Direct Torque, Field Oriented control...**) applied to electrical machines (PMSM, SynRM, Induction machine)
- Contribute to activities related to **fault detection** of inverter driven AC machines and develop **advanced diagnosis techniques** applicable to closed loop control
- Perform **simulations** using Finite Elements Analysis (**FEA**) software for improved modelling of machines and associated losses
- Operate **experimentations** on dedicated testbenches to validate control strategies and loss models

Expected education and experience:

- At least 3 or 4 years of experience (including PhD degree) within the field of AC machines, through a public or private R&D laboratory (industrial experience is a plus)
- Expertise in Induction and Synchronous machines (PMSM, SynRM), including modelling and control
- Practical experience on real-time control and experimental implementation (sensors, closed loop systems) applied to inverter-driven electrical machines
- Basic knowledge of failure modes of AC machines and associated electrical signatures.
- Experience with control and electrical simulation tools such as Labview, Matlab/Simulink, PSIM
- Know-how in FEA softwares such FEMM, JMag, Comsol or Maxwell2/3D.
- Advanced knowledge of motor drive systems including topologies, dV/dt challenges with insulation limitations, fault-tolerance and environmental constraints (aerospace, automotive)

Personal profile:

- Ability to work across multiple tasks methodically and efficiently and meet committed schedules
- Motivated to work in **dynamic environment** and adaptable to changes in priority
- Excellent **communication** and interpersonal skills: ability of sharing information with team players (must show evidence of team-working)
- **Fluent English**
- Availability for frequent international business trips.

Contact:

Magali BRANCHEREAU (HR Manager),

Thanks to send your CV and motivation letter in PDF format by email (in object: your name + the reference PES\_PERM\_062022) to: [jobs@fr.mercede.mee.com](mailto:jobs@fr.mercede.mee.com)