



**CNH Industrial** is a global leader in the capital goods sector with established industrial experience, a wide range of products and a worldwide presence. Each of the CNH Industrial's brands is a major international player in its specific industry: Case IH, New Holland Agriculture and Steyr for tractors and agricultural machinery; Case and New Holland Construction for earth moving equipment; Iveco for commercial vehicles; Iveco Bus and Heliouz Bus for buses and coaches; Iveco Astra for quarry and construction vehicles; Magirus for firefighting vehicles; Iveco Defence Vehicles for defence and civil protection; and FPT Industrial for engines and transmissions. More information can be found on the corporate website: [www.cnhindustrial.com](http://www.cnhindustrial.com)

**FPT Motorenforschung AG** in Arbon has around 250 highly qualified employees working with commitment and acknowledged success. As the main innovation center for FPT Industrial, the site is involved in developing FPT Industrials' future powertrain solutions (not only in electrified powertrains, hybrids and fuel cells, but also novel engines concepts and alternative fuels) and is therefore at the forefront of a transition towards a future of alternative propulsion systems.

## Marie Curie Fellowship in GaN based Inverter Development for Heavy Duty Vehicles

As a member of the eDrive Team in the Electrified Powertrain Engineering division of FPT Industrial, you will be part of a highly skilled team driven to design and engineer best-in-class electrical motors and inverters for FPT Industrial electrified powertrain product portfolio. You will support the engineering, development and integration of WBG (GaN) based inverter to electric powertrains for Heavy Duty application with high reliability and efficiency requirements. You will be contributing to the development of a high-power density, high robustness and high efficiency GaN based Inverter, contribute to the prototyping and testing and validations for functional attributes and addressing the reliability and endurance tests necessary to meet with international standards as well as CNHi/FPT internal standards.

### Your tasks

- Literature research related GaN Based Inverters for Highly demanding applications such as Heavy-Duty Vehicles, from topologies to necessary design and integrations consideration to finally needed tests and validations
- Define few topologies and designs to cover functional requirements, integration and robustness requirements
- Consideration about eMotor insulation and bearing currents (dv/dt impacts) as a constraint to the inverter efficiency and ultimately sizing of the Gate Driver board and Switching slew rates
- Conduct design iterations on selected initial solution for prototyping, with adequate reporting
- Design of experiments/ accelerated stress test to collect required data for development and validation for performance and functionality then for endurance and reliability for Heavy Duty requirements (shock and vibration, thermal cycles, ..)
- Interfacing with other institutions and coordinating potential work packages to be executed by universities (ETH /EPFL)

### Your profile

- You hold a Ph.D. in the field of Electrical Drives, ideally with focus on traction applications (on/off road) by September 2021 (MSCA requirement)
- You have less than 8 years full-time equivalent experience in research after PhD, by September 2021 (MSCA requirement)
- European nationals or long-term residents within EU Member States or Horizon Europe Associated Countries of at least five consecutive years (MSCA requirement)
- You are an expert in the field of Inverters power electronics and inverter for traction (eMobility) and expert in Inverter system design (Power Electronics, Thermal, PCB)
- You have very good knowledge of programming in MATLAB/Simulink, Circuit simulation tools
- You have good knowledge of mechanical and thermal aspects for Inverter design and integration



- You have very good knowledge of experimental planning, data interpretation and processing
- You have strong analytical skills
- You are pro-active, self-starter, able to troubleshoot test stations and test hardware
- You are able to manage budget, time plans and ordering of parts for experiments
- You are fluent in English

The selected researcher will be contacted for MSCA development and training opportunity. We will support the candidate to prepare and submit the proposal. The candidates, whose proposal will be accepted by EU, will work with the eDrive team at FPT.

**Duration:** 2 years contract

**Application deadline to FPT:** August 15th, 2021

**Proposal submission deadline:** October 12th, 2021

**Start date:** March 2022 or later

**Workplace:** FPT Industrial S.p.A., 10156 Turin, Italy and FPT Motorenforschung AG, 9320 Arbon, Switzerland

### Interested?

For further information, please contact Mr Abdelhadi Besri– Tel. +41 (0)76 67 90 847. Please send your application to Human Resources: [recruitment.arbon@cnhind.com](mailto:recruitment.arbon@cnhind.com)

**FPT Motorenforschung AG**, Schlossgasse 2, CH-9320 Arbon, Tel. +41 (0)71 44 77 477

[www.fpt-motorenforschung.ch](http://www.fpt-motorenforschung.ch)

