



Laboratorio de Ingeniería Mecánica (LIM)  
UNIVERSIDADE DA CORUÑA

The **Laboratorio de Ingeniería Mecánica** (Mechanical Engineering Laboratory – <http://lim.ii.udc.es>) at the University of A Coruña (Ferrol, Spain) is looking for a PhD candidate to join their team.

The topic of this PhD thesis will be the development of **digital twins of e-powertrain components to represent and monitor thermal phenomena**. The research project aims to put forward novel formulations to describe thermal phenomena in eMotors that can be used in real-time setups to either be executed in parallel with or to replace physical components in test benches and on-board applications. The candidate will work together with the members of the vehicle dynamics team to formulate numerical methods for the simulation of the thermal phenomena in ePowertrain components and to integrate the proposed methods in real-time, hardware-in-the-loop environments. The goals of this thesis will be attained by means of mathematical analysis, computer simulations, and experimental tests. The expected outcome of the research is to design and implement a digital twin of an electric motor that can be mounted on industrial-grade test benches and provide information about the state of the drive that goes beyond the readings of the sensors mounted on it.

Candidates must hold a bachelor's and a Master's degree on Mechanical Engineering, Computer Science, or a related field. Programming skills, especially in Matlab, C++, and real-time environments, will be positively valued.

Applications and inquiries must be addressed to Prof. Francisco González ([f.gonzalez@udc.es](mailto:f.gonzalez@udc.es)). Applicants must submit a CV and a transcript of their bachelor's and Master's degrees qualifications.

Ferrol, September 7<sup>th</sup> 2023