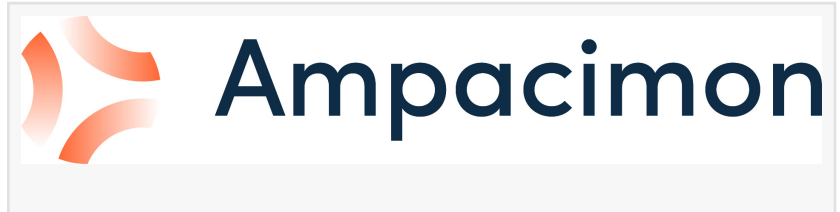


Ampacimon Director Javier Ortego awarded Cum Laude for PhD research in electrical network diagnostics

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/EINPresswire.com/ -- Research advances automated diagnosis of insulation defects in medium- and high-voltage networks



[Ampacimon](#), a global leader in Dynamic Line Rating (DLR) and Partial Discharge Monitoring technologies, has announced that its Director, Javier Ortego, has been awarded the distinction of Cum Laude for his PhD in Production Engineering and Industrial Design at the Polytechnic University of Madrid (UPM).

Javier Ortego's doctoral thesis, entitled "Advanced and automated techniques for diagnosing the condition of electrical insulation in medium- and high-voltage networks," focused on the development and validation of automated methods for diagnosing partial discharge (PD) defects in medium-voltage (MV) and high-voltage (HV) electrical installations while systems remain in operation, supporting real time condition assessment without requiring network shutdowns.

Partial discharge monitoring plays a critical role in identifying deterioration in electrical insulation before failures occur, helping utilities and grid operators improve reliability, reduce downtime and support predictive maintenance strategies. While existing diagnostic solutions can detect and locate insulation defects, they often require significant manual interpretation by specialist engineers. The research aimed to reduce this reliance on manual analysis by enabling automated identification, classification and localisation of insulation defects within live electrical networks.

The research addressed this challenge by developing an automated and reliable diagnostic process, from signal acquisition through to the generation of actionable defect alerts for maintenance teams. The work combined electromagnetic measurement techniques, advanced signal processing methods and artificial intelligence (AI)-based models capable of automatically identifying defect types, affected insulation and defect locations.

To validate the reliability of the automated process, extensive testing was carried out under different stress conditions. Experimental validation was performed both at the High Voltage

Laboratory of the School of Engineering and Industrial Design at UPM (LAT-UPM) and through synthetic simulations using real-world data gathered from MV and HV transmission and distribution installations.

The technologies developed during the research have already been industrialised by Ampacimon, which specialises in dynamic line rating and grid monitoring solutions that help transmission and distribution operators optimise network capacity, reliability and asset performance. As part of this work, the company exploits two PD monitoring patents developed in collaboration with UPM and UFD. The industrialisation process has also involved major power sector partners, including Red Eléctrica, EDP and UFD.

Today, the automated diagnostic tools developed through the research are being used by electricity companies across Europe, Asia, the Middle East, North America and Latin America are using the automated diagnostic tools developed through the research as part of predictive maintenance programmes designed to improve grid resilience and strengthen asset reliability.

According to the official statement issued by the Academic Committee of the PhD Program in Production Engineering and Industrial Design at UPM: "The distinction of 'Cum Laude' has been awarded unanimously."

Commenting on the recognition, Javier Ortego said: "This recognition validates years of work focused on solving real operational challenges faced by utilities and grid operators. At Ampacimon, we remain focused on translating advanced research into practical technologies that support predictive maintenance, reliability and operational efficiency across electrical networks."

The award highlights the growing importance of combining academic research with practical industrial applications to support the modernisation and reliability of electrical infrastructure worldwide.

About Ampacimon

Ampacimon is a pioneer in grid optimisation technologies, specialising in Dynamic Line Rating and Partial Discharge Monitoring solutions that help utilities maximise transmission capacity while improving asset health and network reliability. With proven expertise and deployments worldwide, Ampacimon supports grid operators in unlocking hidden capacity, detecting insulation defects at an early stage, strengthening grid resilience and accelerating the integration of renewable energy.

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