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Ciclo de Conferencias

Dr. Caio Ruviaro Dantas Osório

“Model-Based Engineering and
Real-Time Simulation
for Modern Power Electronics”

Departamento de Ingeniería Eléctrica
Escuela Técnica Superior de Ingeniería
Camino de los Descubrimientos s/n
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SEMINARIO

“MODEL-BASED
ENGINEERING AND
REAL-TIME
SIMULATION
FOR MODERN POWER
ELECTRONICS”

ORGANIZAN:

Cátedra Endesa
de la Universidad de Sevilla

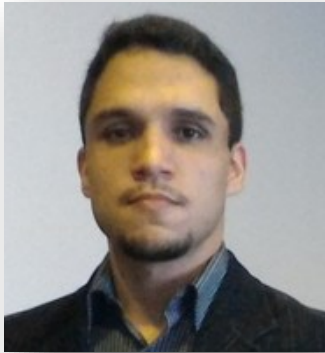
Días: 28 y 29 de abril de 2025

Hora: 16:00 h.

Sala de Grados de la
ETS de Ingeniería
Universidad de Sevilla



Título: Model-Based Engineering and Real-Time Simulation for Modern Power Electronics



Dr. Caio Ruviaro Dantas Osório

Global Manager of Academia Programs at Typhoon HIL

Resumen:

The design, development, and lifecycle maintenance of digital controllers for power electronics, power systems, and industrial applications are becoming increasingly complex. Traditional development approaches, often fragmented, can lead to inefficiencies, late-stage issue discovery, costly design iterations, and integration problems.

In this talk, we will explore how Model-Based Engineering (MBE) can address these challenges, streamlining the design, validation, implementation, and optimization of controllers for intelligent digital power applications. The talk will cover different modelling approaches and simulation requirements, showcasing an example that demonstrates different simulation methodologies throughout the development cycle, starting from offline simulations all the way to real-time Hardware-in-the-Loop (HIL) simulation with an actual controller implementation. .

Bio:

Dr. Caio Osório is the Global Manager of Academia Programs at Typhoon HIL, dedicated to advancing digital power technologies by supporting research, teaching, and training initiatives through model-based engineering and Hardware-in-the-Loop technology.

Caio earned his M.Sc. and Ph.D. in electrical engineering from the Federal University of Santa Maria (UFSM), Brazil, with research stays at the University of Oviedo, Spain, and Fraunhofer IZM, Germany. In 2021, he joined Typhoon HIL as an Applications Engineer, developing high-fidelity model-based testing solutions for industrial and academic partners worldwide.

He has collaborated on numerous research projects and co-authored over 50 papers and three book chapters in areas such as real-time simulation, robust control of power converters, renewable energy integration, and electrical machine control.