



Texas Instruments at PoliTo: Mastering Three-Phase DC/AC Converters – Topologies, Design, and Live Demo

Thursday March 6th (15:00-18:00): Laboratorio Didattico Dimostrativo Ingegneria Elettrica

Active three-phase DC/AC converters are widely used in modern applications such as EV charging stations, energy storage systems, and onboard chargers. In this seminar, Texas Instruments provides a comprehensive comparison of the most common three-phase DC/AC converter topologies, emphasizing their advantages and suitability for various applications. Attendees will gain a solid understanding of the fundamental operating principles of three-phase converters and learn how to select the most appropriate topology for specific use cases. The presentation will feature an in-depth walkthrough of the design process for a three-phase T-Type converter, covering essential components including power MOSFETs, gate drivers, microcontrollers (MCUs), and current sensing techniques.

The seminar will conclude with a live demonstration of Texas Instruments' reference design, offering practical insights into real-world implementation and performance.

Presentation Timeline:

Introduction: Texas Instruments company presentation

Three-phase Converter Topologies: Comparison of common three-phase DC/AC converters and their applications

T-Type Converter Design: Detailed design considerations (MOSFETs, gate drivers, MCU, current sensing)

Live Demo: Reference design demonstration and performance discussion

Q&A Session: Open discussion and audience questions

Presenter's Bio:



Riccardo Ruffo, who has been at Texas Instruments Germany since 2021, works as a system engineer in the Energy Infrastructure sector. His main work includes EV charging, inductive wireless power transfer, photovoltaic, renewable energy, and energy storage applications. Riccardo Ruffo received the Ph.D. degree in electric, electronics and communication engineering from Politecnico di Torino, Turin, Italy.