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Center of Excellence in Computation and Characterization of
Electromagnetic Devices and Subsystems
K.N. Toosi University of Technology



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Faculty Of Electrical Engineering
K. N. Toosi University of Technology

Date: April. 18, 2023

(Farvardin 1402)

Time: 14:00-15:00



Dr. Mohammad Sedigh Toulabi
Assistant Professor, Department of
Electrical and Computer Engineering,
University of Windsor

Dual-Inverter Open-Winding Permanent Magnet Synchronous Machine Drives

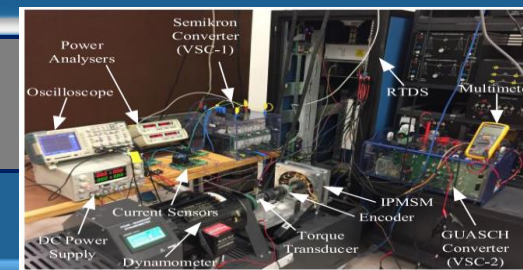
Electrical Engineering Seminar

SCAN
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Abstract

Permanent magnet synchronous machines (PMSMs) are extensively used in industry applications such as electric vehicles (EVs) and renewable energy systems. The windings of the PMSMs are normally configured in star and/or delta connections; however, by opening the neutral point of the star connected PMSM, it would be feasible to feed the phases of the machine through two separately controlled voltage source converters (VSCs) in the form of a dual-inverter motor drive system. Recently, dual-inverter open-winding motor drives have been used (i) to extend the machine's operating region and support its reactive power, (ii) for embedding an auxiliary energy source in vehicular applications, and (iii) for efficiency improvement and converter rating reduction in renewable energy generation systems. In this research seminar, the dual-inverter open-winding PMSM drive is introduced and the machine's nonlinearities and losses are taken into account for controlling the drive system in both flux weakening (FW) and maximum torque-per-ampere (MTPA) regions in various real and reactive power sharing between two utilized VSCs.



**In Person: Shahid Rezaei Nejad Hall, on the
second floor of Shahid Asadi building**

Online: <http://meet.kntu.ac.ir/b/zar-jrb-p50>

