

Romanian Academy 2016 “Constantin Budeanu” Award Prof. Lucian Nicolae TUTELEA, PhD & Assoc. Prof. Sorin Ioan DEACONU, PhD

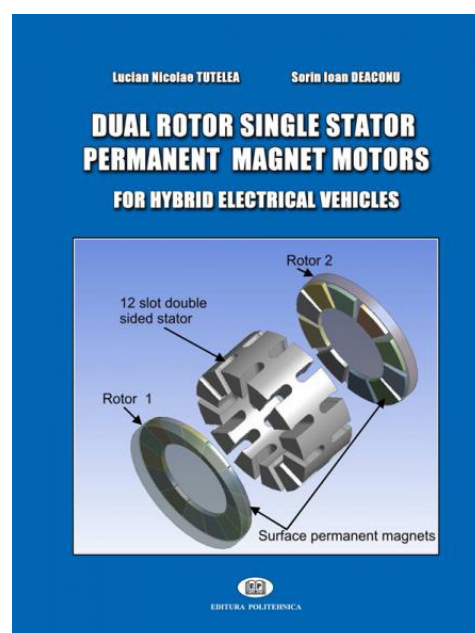
The actual e - continuously variable transmission (e-CVT) solution for the parallel Hybrid Electric Vehicle (HEV) requires two electric machines, two inverters, and a planetary gear. A distinct electric generator and a propulsion electric motor, both with full power converters, are typical for a series HEV.

This book introduces a novel brushless, single winding and single stator, dual PM rotor axial-air-gap machine capable to deliver independently torque at the two rotors by adequate vector control. It is presented the preliminary designing with Matlab, quasi 3D and 3D FEM analysis and validation, the optimal design via Hooke Jeeves method and control of a synchronous machine with axial airgap single stator dual-rotor with permanent surface magnets and different pole pairs number, destined for hybrid electric vehicles (HEV) applications. For machine's designing was used the equivalent magnetic circuits method that takes into account the saturation and dispersion of the magnetic field.

Lucian Nicolae Tutelea is professor at the Politehnica University of Timisoara, Romania, PhD coordinator in electrical engineering, member of IEEE since 2007, qualified in the field of optimal design of electrical machines, digital control of electrical drives, loading the artificial load of the induction machine, modeling and simulation of electrical drives using the languages C and Matlab, finite element analysis of electric machines with 30 articles in ISI conferences and journals, 6 participations in research projects (since 1997) as a director or as a team member in the field of electrical machines, power electronics, electric drives systems in vehicles, renewable energy systems and electric drives (of which 1 is a FP7 project).

Sorin Ioan Deaconu is associate professor at the Politehnica University of Timisoara, Romania, member of IEEE since 2006, the main author and/or co-author of more than 100 international paper, 42 ISI articles and 38 DBI, the main author and/or co-author of 20 books and member at 10 national grants team. Associate editor at “Journal of Electrical Engineering” from 2015 and reviewer at more than 75 ISI and 400 BDI articles (journals and conferences).

Since 1994, he had collaborated with BeeSpeed Automation Ltd, Timișoara, where he was involved in several industry projects regarding industrial automation, electric machines and drives in many company in the western of Romania.



The book was conceived primarily as a technical support for electrical engineers in hybrid and electrical vehicles design and production, but it is expected to be of interest and useful for students and staff members of electrical engineering faculties, as well as, for engineers working in automotive industry.