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Subject : Welcome Review

Book: M. Ehsani, Y. Gao, S. Longo, K. Ebrahimi: " Modern Electric, Hybrid Electric and Fuel Cell Vehicles", 3rd edition, 20 chapters on 505 pp., CRC Press, Taylor & Francis Group, Boca Raton, Florida ,USA,2018

The present book, revised and completed with latest developments for the 3rd edition, constitutes one of the most comprehensive ones on the timely subject on EVs and HEVs staring with the environmental aspects continuing with the mechanical anatomy of vehicles and then dealing extensively with with electric power conversion and storage on automobiles. The authors constitute one of academic groups that contributed significantly to the progress in R&D of EVs and HEVs. However they synthesized most representative knowledge from recent literature first, then added their contributions with convincing results. The book in its 3rd version is structured in 20 chapters covering 505 pp. Four new Chapters and an Appendix (that describes Toyota Prius system), have been added in the 3rd edition, together with numerous new paragraphs all throughout the book.

The first 4 Chapters deal in notable detail with the environmental impact and history of modern transportation, vehicle propulsion and braking fundamentals, internal combustion engine modeling and control, vehicle transmissions, including continuously variable ones.

Chapters 5-7 describe in notable detail the principles and main schemes on EVs, HEVs and their electric propulsion systems with IMs, PMSMs and SRMs

Chapters 8-14 present the design and control principles and main realizations of series hybrid, parallel hybrid , series-parallel hybrid , mild hybrid electric drive trains, energy storage and regenerative braking. They constitute the hard core of the book, in our opinion.

Chapters 15-16 treat thoroughly the fuel cells and their hybrid electric vehicle drivetrain design.

Chapter 17 is rather special as it deals with series hybrid off-road vehicles, so useful in various industries.

Finally Chapters 18-20 deal with optimization design of full size engine HEV, power train optimization and an user's guide for a multi-objective optimization tool box in designing RHs and HEVs that should assist readers in their independent follow up of book rich contents.

The presentation in clear and rather concise with numerous examples and illustrative digital simulations results (many from the authors' own work); it should be thus very suitable for a senior or graduate course or a valuable source for R&D engineers in automotive industry.

All the above said I warmly recommend this valuable Monograph/textbook to all interested in modern automobiles ' electrification for less energy consumption and pollution per passenger and Km in town and outside town driving.

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