This new edition includes approximately 30% new materials covering the following information that has been added to this important work:

• extends the contents on Li-ion batteries detailing the positive and negative electrodes and characteristics and other components including binder, electrolyte, separator and foils, and the structure of Li-ion battery cell. Nickel-cadmium batteries are deleted.

• adds a new section presenting the modelling of multi-mode electrically variable transmission, which gradually became the main structure of the hybrid power-train during the last 5 years.

• newly added chapter on noise and vibration of hybrid vehicles introduces the basics of vibration and noise issues associated with power-train, driveline and vehicle vibrations, and addresses control solutions to reduce the noise and vibration levels.

Chapter 10 (chapter 9 of the first edition) is extended by presenting EPA and UN newly required test drive schedules and test procedures for hybrid electric mileage calculation for window sticker considerations.

In addition to the above major changes in this second edition, adaptive charging sustaining point determination method is presented to have a plug-in hybrid electric vehicle with optimum performance.
ABOUT THE AUTHOR

Dr. Wei (Kevin) Liu is an Engineering Specialist in the Electric Power & Advanced Systems Department of General Motors with expertise in dynamic system design, performance analysis, modeling and control. He has 14 years of hybrid electric vehicle engineering experience and 15 years of academic experience. Dr. Liu's primary technical interests are dynamic system control, modeling, performance analysis and fault diagnosis. He currently focuses on the energy management strategy, energy storage system modeling and control algorithm development of hybrid vehicle systems at General Motors. He has authored over 30 technical papers and holds eight patents.

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