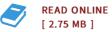# A contribution to the modelling of the charge acceptance of lead-acid batteries - using frequency and time domain based concepts

By Marc Thele

Shaker Verlag Nov 2008, 2008. Taschenbuch. Condition: Neu. Neuware - The demands on electrical storage devices in automotive applications and other technical systems have greatly increased in recent years and are going to grow further in the future. This requires developing and sizing new vehicle systems, devising more efficient operating strategies and establishing the system limits. The so-called 'SLI'-battery has gained importance. Today, the lead-acid battery enables highly dynamic operation of powerdemanding, electromechanically and electrohydraulically driven systems. Supplying these systems exclusively by the 'combustion engine and generator system' can hardly be realized, since this system is characterized by significantly lower dynamics and a lower peak power than the battery. The battery also allows for engine idle-off periods (without turning the loads off). Additionally, a small fraction of the braking energy can be returned to the system. Since the design of those complex systems is barely manageable without using simulation tools, appropriate device models of vehicle components are necessary; a battery model constitutes one of the essentials. The proposed model precisely represents the processes which are of main interest for the respective battery applications. For automotive applications, short-term periods with very high discharging currents (cranking), longer discharging events (engine idle-off) and...

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