

1. Record Nr.	UNINA9910774620403321
Autore	Pereira Ferraz Pablo Korth
Titolo	Auswirkungen der hochfrequent alternierenden Strome leistungselektronischer Schaltungen auf das Betriebs- und Alterungsverhalten von Lithium-Ionen-Batterien / / Pablo Korth Pereira Ferraz
Pubbl/distr/stampa	Berlin : , : Universitätsverlag der Technischen Universität Berlin, , 2022
Descrizione fisica	1 online resource (218 pages)
Collana	Elektrische Energietechnik an der TU Berlin
Disciplina	621.3
Soggetti	Electrical engineering
Lingua di pubblicazione	Tedesco
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1 Motivation und Einfuhrung -- 2 Theoretische Grundlagen -- 3 Realisierung des Messaufbaus -- 4 Mess- und Analysemethoden -- 5 Ergebnisse der Alterungstests -- 6 Variation: Sperrwandler -- 7 Schlussfolgerungen und Ausblick -- A Weitere Charakterisierungsmessungen -- Abkurzungsverzeichnis -- Symbolverzeichnis -- Literatur -- Abbildungsverzeichnis -- Tabellenverzeichnis -- Bildnachweise.
Sommario/riassunto	The success of battery electric vehicles mainly depends on the reliability and predictability of the battery pack connected to different power electronics with high frequency current ripple inducing switching patterns. In this thesis, the influence of these current ripple on battery ageing and battery operating behaviour is investigated by cyclic ageing tests on lithium-ion-cells with induced high frequency current ripple by a specifically developed cell tester. Comparing the most important ageing parameters, i.e. capacity loss, inner resistance and polarisation behaviour, yields only a minor and mostly neglectable influence of current ripple on battery ageing, compared to more severe impacts such as cycle depth. Moreover, the direct link between the ageing parameters is confirmed and independent from the cell's cycling. However, the measurements also show that the practical cycle depth is limited due to current ripple and suggest a quantitative connection between the size of the current ripple and the lowered reachable cycle

depths. Hence, a severe impact of current ripple on the reliability of the battery pack is unlikely whereas the predictability might be noticeably reduced.
