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JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Seminar Festkörper- und Grenzflächenphysik KOMET - experimentell

Sept. 3, 2014 at 1 p.m.
MEDIEN-Raum, Staudingerweg 7, 3. Stock, Raum 431

Prof. Dr. H. J. Elmers

Christian Dietrich
Christian-Albrechts-Universität Kiel

Vanadium pentoxide composites for the use in lithium ion batteries

A new one-step hydrothermal synthesis for composite materials comprised of conducting polymer and V2O5 is presented. The compounds were chemically and electrochemically thorough examined. It has been shown that the composites act electrochemically as one compound due to the intermolecular forces of the interleaved organic components. The application of these materials as a cathode material for lithium-ion-batteries has been investigated. The electrochemically behavior have indicated that the composites exhibit a higher capacity, rate capability and cycle stability as the sum of the components. PANI composites had a specific capacity of 264 mAh•g-1 at 0.2 C, which is 100 % of the theoretical capacity of 2 equivalents Li intercalated in V2O5. PEDOT composites showed a specific capacity of 176 mAh•g-1 at 0.2 C with significant improved cycle stability and rate capability.

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