

FIFTEENTH ANNUAL CONFERENCE

YUCOMAT 2013

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 2-6, 2013
<http://www.mrs-serbia.org.rs>

Programme and The Book of Abstracts

Organised by:
Materials Research Society of Serbia

under the auspices of
Federation of European Material Societies
and
Materials Research Society

Title: THE FIFTEENTH ANNUAL CONFERENCE
YUCOMAT 2013
Programme and The Book of Abstracts

Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, 11000 Belgrade, Serbia
Phone: +381 11 2185-437; Fax: + 381 11 2185-263
<http://www.mrs-serbia.org.rs>

Editors: Prof. Dr. Dragan P. Uskoković and Prof. Dr. Velimir Radmilović

Technical editor: Aleksandra Stojičić

Cover page: Aleksandra Stojičić and Milica Ševkušić

Copyright © 2013 Materials Research Society of Serbia

Acknowledgments:



Printed in: Biro Konto
Sutorina bb, Igalo – Herceg Novi, Montenegro
Phones: +382-31-670123, 670025, E-mail: bkonto@t-com.me
Circulation: 220 copies. The end of printing: August 2013

P.S.B.14.

**THE INCORPORATION OF VANADIUM INTO OLIVINE LiFePO_4/C :
IMPROVEMENT OF LITHIUM INTERCALATION FROM BOTH ORGANIC
AND AQUEOUS ELECTROLYTE**

M. Vujković¹, D. Jugović², M. Mitrić³, I. Stojković Simatović¹, N. Cvjetičanin¹, S. Mentus^{1,4}
¹University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia, ²Institute of Technical
Sciences of SASA, Belgrade, Serbia, ³Institute for Nuclear Sciences Vinča, Belgrade, Serbia,
⁴Serbian Academy of Sciences and Arts, Belgrade, Serbia

The simple and fast (malonic acid+glycine)-assisted gel-combustion process, followed by a heat treatment at 750°C under reductive atmosphere, is found to be a very effective way for the synthesis of (V-doped LiFePO_4)/C composites. The Rietveld refinement confirms that vanadium incorporation into olivine structure was accompanied by the formation of iron phosphide conducting phase. The coulombic capacity and rate capability of (V-doped LiFePO_4)/C composite, in both organic and aqueous electrolyte solutions, were significantly improved relative to an undoped sample, as revealed by both galvanostatic cycling and cyclic voltammetry. The average discharging capacities of ~5mol.% V-doped LiFePO_4/C composite in an aqueous LiNO_3 solution were 91, 73 and 35 mAh g^{-1} at 1, 10 and 100 C, respectively, with no perceivable capacity fade upon 100 charging/discharging cycles.

P.S.B.15.

**STUDY OF MODIFIED TiN COMPOSITES SUITABLE
FOR HIGH-TEMPERATURE APPLICATIONS**

E. Bartoníčková, F. Frajkorová, M. Boháč, J. Havlica
*Materials Research Centre, Faculty of Chemistry, Brno University of Technology,
Brno, Czech Republic*

Titanium nitride is nowadays industrially widespread due to its high anti-corrosive and electrical properties. TiN is also suitable candidate for desirable high temperature applications (i.e. electrocatalysts, contact or sensors). Paper concerns of the TiN based cermets preparation via modified precipitation and sol-gel reactions that enable decreasing of the necessary costs for TiN coatings or dense ceramics production. Investigation of morphology (SEM), phase and chemical composition (XRD, XPS and Raman study) of prepared TiN particles are discussed as key parameters for understanding of relation between type of synthesis of the particles and required mechanical properties of prepared coatings and their dense ceramic counterparts.