

Programme & The Book of Abstracts

Twentieth Annual Conference

YUCOMAT 2018

Herceg Novi, Montenegro, September 3–7, 2018

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TWENTIETH ANNUAL CONFERENCE

YUCOMAT 2018

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 3-7, 2018
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Organised by:
Materials Research Society of Serbia

Endorsed by:
**Materials Research Society,
European Materials Research Society
and
Federation of European Material Societies**

Title: THE TWENTIETH ANNUAL CONFERENCE
YUCOMAT 2018
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Publisher: Materials Research Society of Serbia
Knez Mihailova 35/IV, P.O.Box 433, 11000 Belgrade, Serbia
Phone: +381 11 2185-437
<http://www.mrs-serbia.org.rs>

Editors: Prof. Dr. Dragan P. Uskokovi and Prof. Dr. Velimir R. Radmilovi

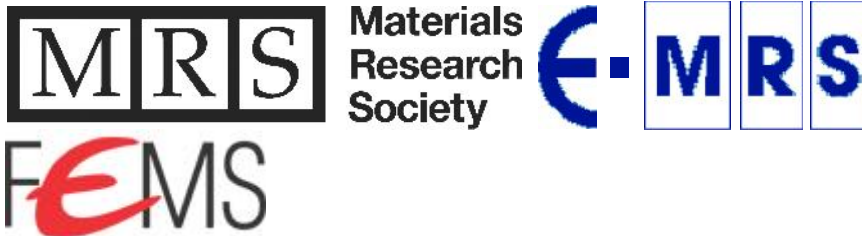
Technical editor: Sava Stoisavljevi

Front cover: Modified Photo by Hons084; Wikimedia Commons
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Acknowledgments: This conference is celebrating 20 years of YUCOMAT



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 2018

P.S.B.17.

Comparative study on noble metal based nanocatalysts on different supports for low temperature fuel cells application

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Platinum based nanostructures on carbon support are state of the art materials for proton exchange membrane fuel cells application. Contemporary research directions in this field imply synthesis and characterization of novel carbon free catalysts supports to overcome disadvantages of carbon supported ones. We have recently synthesized platinum and palladium nanocatalysts onto different novel metal oxide based supports: titanium-oxide, tin oxide and tungsten oxide, doped by different metals (Nb, Ru, Sb), to achieve satisfactory conductivity. These novel nanostructures were characterized by X-ray diffraction (XRD), high resolution transmission electron microscopy (HRTEM), X-ray photoelectron spectroscopy (XPS), as well as by electrochemical techniques. The synthesized nanostructured catalysts were tested for oxygen reduction reaction. Obtained catalytic activities and stabilities were compared to the same noble metal loading catalysts on Vulcan XC-72 support. The results of comparison revealed many advantages of carbon free supported nanocatalysts, regarding both activity and stability.

Acknowledgements: This work was financially supported by Ministry of Education, Science and Technological Development Republic of Serbia, under Contract No. 172054.

The authors would like to acknowledge networking support by the COST Action MP1407.

CIP-

66.017/.018(048)

MATERIALS Research Society of Serbia (Beograd). Conference (20 ; 2018 ; Herceg Novi)

Programme ; and The Book of Abstracts / Twentieth Annual Conference YUCOMAT 2018, Herceg Novi, September 3-7, 2018 ; organised by Materials Research Society of Serbia ; [editors Dragan P. Uskokovi and Velimir R. Radmilovi]. - Belgrade : Materials Research Society of Serbia, 2018 (Herceg Novi : Biro Konto). - XLIV, 159 str. : ilustr. ; 23 cm

Tiraž 220. - Bibliografija uz pojedine apstrakte. - Registar.

ISBN 978-86-919111-3-3

1. Materials Research Society of Serbia (Beograd)

a) -

b) -

COBISS.SR-ID 266944524