

**NINTH YOUNG RESEARCHERS CONFERENCE  
MATERIALS SCIENCES AND ENGINEERING**

**December 20-22, 2010, Belgrade, Serbia  
Serbian Academy of Sciences and Arts, Knez Mihailova 35**

**Program and the Book of Abstracts**

**Materials Research Society of Serbia  
and  
Institute of Technical Sciences of the  
Serbian Academy of Sciences and Arts**

**December 2010, Belgrade, Serbia**

**Book title:**

**Ninth Young Researchers Conference - Materials Sciences and Engineering:  
Program and the Book of Abstracts**

**Publisher:**

**Institute of Technical Sciences of the Serbian Academy of Sciences and Arts  
Knez Mihailova 35/IV, 11000 Belgrade, Serbia  
Tel: +381-11-2636994, fax: 2185263  
<http://www.itn.sanu.ac.rs>**

**Editor:**

**Prof. Dr. Nenad Ignjatović**

**Technical Editor:**

**Aleksandra Stojičić**

**Printer:**

**Copy Planet  
Brankova 12, 11000 Belgrade, Serbia  
Tel: +381-11-3036545, fax: 3036546  
<http://www.copyplanet.rs>**

**Edition:**

**130 copies**

CIP – Каталогизacija у публикацији  
Народна библиотека Србије, Београд

66.017/.018(048)

**YOUNG Researchers Conference Materials Sciences and Engineering (9 ; 2010 ; Beograd)**

Program ; #and the #Book of Abstracts / Ninth Young Researchers Conference Materials Sciences and Engineering, December 20–22, 2010, Belgrade, Serbia ; [organized by] Materials Research Society of Serbia and Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [editor Nenad Ignjatović]. – Belgrade : Institute of Technical Sciences of SASA, 2010 (Belgrade : Copy Planet). – XIV, 50 str. ; 30 cm

Tiraž 130. – Registar.

ISBN 978–86–80321–26–4 (ITNSANU)

1. Materials Research Society (Beograd) 2. Institute of Technical Sciences of SASA (Beograd)

a) Наука о материјалима - Апстрактни b) Технички материјали – Апстрактни

COBISS.SR-ID 180427276

II/7

### **Microstructure evolution and sintering kinetics of ZnO**

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The aim of this paper was to analyse the sintering kinetics and microstructure evolution of ZnO. Powder was isothermally sintered (15, 30, 60, 90 and 120 minutes) in the temperature range from 800 to 1200°C. The values of Lenel parameter were used to analyze both densification and mass transport processes. Scanning electron microscopy was performed in order to determine the microstructure evolution and dependence of average grain size on temperature and time of sintering. These results will enable development of new phenomenological equations that can be applied in analyses of sintering kinetics.

Keywords: ZnO, Sintering, Kinetics.

II/8

### **Pulse plasma processing as a candidate technique for surface treatment of wind turbine components**

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Modern wind turbines construction is characterized by constantly increasing electrical power. The mandatory request of constant frequency of produced electricity output is contradictory to the variable wind turbine rotation frequency. The matching of wind turbine and electrical generator rotation frequencies can be achieved by a relatively complicated transmission gear box system or by power electronic system which eliminates matching gear box. The gear components must be resistant to different types of wear and to dynamic and static load, as well as to be corrosion resistant especially in off shore wind parks and to have acceptable noise emission. Unipolar pulse plasma was demonstrated to be efficient in diffusion and deposition mode of operation which combination gives the opportunity to meet the requirements of materials for wind turbine gears manufacturing, as well as for large size component treatment.