

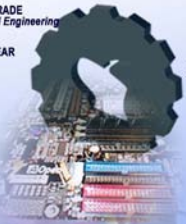
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## BOOK OF ABSTRACTS

# The Third International Symposium on Agricultural Engineering

## ISAE-2017

October, 20-21, 2017.  
Belgrade - Serbia





The Third International Symposium on  
Agricultural Engineering  
ISAE-2017



**20th-21st October 2017, Belgrade – Zemun, SERBIA**  
<http://www.isae.agrif.bg.ac.rs>

**Organizer:**

University of Belgrade, Faculty of Agriculture, Department for Agricultural Engineering,  
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**Support:**

- The European Society of Agricultural Engineers (EurAgEng)
- Association for Medicinal and Aromatic Plants of Southeast European Countries (AMAPSEEC).

# ISAE-2017

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**Acknowledgements:** This publication is published with the financial support of the Ministry of Education, Science and Technological Development, Republic of Serbia

**Published by:** University of Belgrade, Faculty of Agriculture,  
Department for Agricultural Engineering,  
Nemanjina 6, 11080 Belgrade, Serbia

**Editors:** Dr Rade Radojevic  
Dr Aleksandra Dimitrijevic

**Technical editor:** Dr Rade Radojevic

**Printed by:** University of Belgrade, Faculty of Agriculture, Beograd

**Published:** 2017

**Circulation:** 300 copies

**ISBN 978-86-7834-287-5**

CIP - Katalogizacija u publikaciji - Narodna biblioteka Srbije, Beograd

631.3(048)  
631.17(048)

INTERNATIONAL Symposium on Agricultural Engineering (3 ; 2017 ; Beograd)  
Book of Abstracts / The Third International Symposium on Agricultural Engineering, ISAE-2017, 20th-21st October 2017, Belgrade - Zemun, Serbia ; [organizers] University of Belgrade, Faculty of Agriculture ... [et al.] ; [editors Rade Radojevic, Aleksandra Dimitrijevic]. - Belgrade : University, Faculty of Agriculture, Department for Agricultural Engineering, 2017 (Beograd : University, Faculty of Agriculture). - VI, 51 str. ; 24 cm

Tiraž 300.

ISBN 978-86-7834-287-5

1. Poljoprivredni fakultet (Beograd)

a) Пољопривредне машине - Апстракти b) Пољопривреда - Механизација - Апстракти  
COBISS.SR-ID 248001548

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ISAE - 2017



The Third International Symposium on Agricultural Engineering, 20<sup>th</sup>-21<sup>st</sup> October 2017, Belgrade–Zemun, Serbia

## FABRICATION AND APPLICATIONS OF MULTIFUNCTIONAL NANOSTRUCTURED TiO<sub>2</sub>

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**Abstract.** *Nanomaterials development is a rapidly emerging field of research with enormous potential for societal and economic benefits. In agro and food industries dimension-dependent properties or phenomena of nanomaterials may be used for various functional effects such as increased bioavailability or decreased toxicity of products, better detection of pathogens, improved food packaging materials, or improved delivery of nutrients. Since these effects may derive from altered or unique characteristics of materials in the nanoscale range that are not normally observed or expected in larger-scale materials with the same chemical composition, such changes raise questions about the safety, effectiveness, performance, quality or public health impact of nanotechnology products. In this article we have reviewed the fabrication, properties, and selected applications of nanostructured TiO<sub>2</sub> based materials. Special attention has been paid to TiO<sub>2</sub> nano particles and nanotubes fabrication perspectives and their applications in agriculture. We have shown that high photocatalytic disinfection and photo biological effects of nanostructured TiO<sub>2</sub> coupled with its low price, nontoxicity, and stable performance especially provide new approaches for solving environmental pollution and pesticide residue problems in agriculture.*

**Key words:** *nanomaterials, nanoparticles, nanotubes, TiO<sub>2</sub>*



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