The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research (IMSI), University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of Nuclear Sciences "Vinča", University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade

PROGRAMME and the BOOK of ABSTRACTS

6CSCS-2022

6th Conference of the Serbian Society for Ceramic Materials
June 28-29. 2022. Belgrade Serbia

Edited by:
Branko Matović
Aleksandra Dapčević
Vladimir V. Srdić

Programme and Book of Abstracts of The Sixth Conference of The Serbian Society for Ceramic Materilas **publishes abstracts from the field of ceramics, which are presented at international Conference.**

Editors-in-Chief
Dr Branko Matović
Prof. Aleksandra Dapčević
Prof. Vladimir V. Srdić

Publisher
Institut za multidisciplinarna istraživanja
Kneza Višeslava 1, 11000 Belgrade, Serbia

For Publisher
Dr Dragica Stanković

Printing layout
Vladimir V. Srdić

Press
Faculty of Technology and Metalurgy, Research and Development Centre of Printing Technology, Karnegieva 4, Belgrade, Serbia

The year off issue:
2022.

ISBN 987-86-80109-23-7

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)
66.017/.018(048)

DRUŠTVO za keramičke materijale Srbije. Konferencija (6 ; 2022 ; Beograd)
Programme ; and the Book of Abstracts / 6th Conference of The Serbian Society for Ceramic Materials, 6CSCS-2022, June 28-29, 2022, Belgrade, Serbia ; [organizers] The Serbian Society for Ceramic Materials ... [et al.] ; edited by Branko Matović, Aleksandra Dapčević, Vladimir V. Srdić. - Belgrade : Institut za multidisciplinarna istraživanja, 2022 (Belgrade : Faculty of technology and metalurgy, Research and development centre of printing technology). - 91 str. : ilustr. ; 25 cm

Tiraž 120. - Str. 7: Welcome message / Branko Matovic. - Registar.

ISBN 978-86-80109-23-7

а) Керамика -- Апстракти б) Наука о материјалима -- Апстракти
в) Наноматеријали -- Апстракти

COBISS.SR-ID 69088009

The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research, University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of Nuclear Sciences "Vinča", University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade

PROGRAMME AND THE BOOK OF ABSTRACTS

6th Conference of The Serbian Society for Ceramic Materials

June 28-29, 2022
Belgrade, Serbia
6CSCS-2022

Edited by:
Branko Matović
Aleksandra Dapčević
Vladimir V. Srdić

P-42

PHASE TRANSFORMATIONS DURING CYCLIC ANNEALING OF Ti_3Al-BASED INTERMETALLIC

Ivana Cvijović-Alagić, Dejan Zagorac

Centre of Excellence "CEXTREME LAB", Vinča Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

Alterations that emerged in the intermetallic Ti_3Al-based alloy microstructure during the cyclic annealing at 600 °C and 900 °C in the air atmosphere were studied by combining experimental and theoretical methods. The phase transformations in the Ti-24Al-11Nb (at.%) alloy microstructure were monitored during the alloy high-temperature processing up to 120 h. The conducted cyclic annealing resulted in the external oxide scale formation and the microstructural features alteration. Obtained experimental results indicated that the annealing temperature and duration significantly affected the external scale composition and structure, as well as the alloy phase composition. Namely, the alloy microstructural characterization revealed that a starting two-phase $\alpha_2+\beta$ microstructure changed to a great extent during the cyclic annealing. The increase of the cyclic annealing temperature induced the intensive $\alpha_2 \rightarrow \beta$ phase transformation and as a result, new α_2'' and O-Ti_2AlNb phases appeared in the investigated alloy microstructure. The experimentally observed appearance of the O-Ti_2AlNb phase in the Ti_3Al-based alloy microstructure was confirmed by the results of theoretical investigations. *Ab initio* modeling also enabled the prediction and study of the additional structures in the O-Ti_2AlNb compound using the first-principles calculations.