Examination and characterization of nanostructured Co0.9Ho0.1MoO4

Милена Росић, Маја Милошевић, Мариа Чебела, Владимир Додевски, Весна Лојпур, Марија Васић, Александра Зарубица

Serbian Ceramic Society Conference

ADVANCED CERAMICS AND APPLICATION XI

New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 18-20. September 2023.

Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION XI
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 18-20th September 2023.

Book title: Serbian Ceramic Society Conference - ADVANCED CERAMICS AND APPLICATION XI Program and the Book of Abstracts

Publisher:
Serbian Ceramic Society

Editors:
Dr. Nina Obradović
Dr. Lidija Mančić

Technical Editors:
Dr. Adriana Peleš Tadić
Dr. Jelena Živojinović

Printing:
Serbian Ceramic Society, Belgrade, 2023.

Edition:
120 copies

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

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

SRPSKO keramičko društvo. Conference Advanced Ceramics and Application : New Frontiers in Multifunctional Material Science and Processing (11 ; 2023 ; Beograd)

Program ; and the Book of abstracts / Serbian Ceramic Society Conference Advanced Ceramics and Application XI New Frontiers in Multifunctional Material Science and Processing, Serbian Academy of Sciences and Art Serbia, Belgrade,18-20.September 2023. ; [editors Nina Obradović, Lidija Mančić]. - Belgrade : Serbian Ceramic Society, 2023 (Belgrade : Serbian Ceramic Society). - 90 str. : ilustr. ; 30 cm

Tiraž 120.

ISBN 978-86-905714-0-6

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

COBISS.SR-ID 122849545

decolorization of methylene blue, while their photoelectrochemical activity for water splitting were tested through linear sweep voltammetry in different electrolytes.

P15

Examination and characterization of nanostructured $Co_{0.9}Ho_{0.1}MoO_4$

Milena Rosić[1], Maja Milošević[2], Maria Čebela[1], Vladimir Dodevski[1], Vesna Lojpur[3], Marija Vasić[4], Aleksandra Zarubica[4]

[1]Laboratory for Material Science, Institute of Nuclear Sciences „Vinča“, National Institute of the Republic of Serbia, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia
[2]Department of Mineralogy, Crystallography, Petrology and Geochemistry, Faculty of Mining and Geology, University of Belgrade, Đušina 7, 11000 Belgrade, Serbia
[3]Department of Atomic Physics, Vinča Institute of Nuclear Sciences, National Institute of the Republic of Serbia, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia
[4]Department of Chemistry, Faculty of Science and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia

The nanostructured powderwas synthesized by the glycine nitrate procedure (GNP) because it proved to be the most effective and simplest method suitable for controlling the composition and morphology of $Co_{0.9}Ho_{0.1}MoO_4$. To prepare nanostructured $Co_{0.9}Ho_{0.1}MoO_4$, metal nitrates, and glycine were mixed in appropriate stoichiometric ratios. For the preparation of the technologically important $Co_{0.9}Ho_{0.1}MoO_4$, the combustion process has proven to be a promising method that achieves control of stoichiometry, homogeneity, and purity. The synthesized samples were examined by DTA, X-ray diffraction (XRD), Fourier transform infrared (FT-IR) spectra, Spectroscopy, Field emission scanning electron microscopy (FESEM), and nitrogen adsorption method. The acquired nanopowder showed a tendency for agglomeration, inhomogeneous microstructure, and plate-like crystals. The photocatalytic activity of the obtained $Co_{0.9}Ho_{0.1}MoO_4$nanopowders was evaluated by the photocatalytic degradation of crystal violet in an aqueous solution. After photocatalytic testing and all the above-mentioned characterizations, it was shown that these nanostructured materials represent promising solutions in photocatalytic processes toward green chemistry and sustainable development.

Acknowledgment:These investigations were supported by the Ministry of Education, Science, and Technological Development of the Republic of Serbia (Contract numbers 451-03-47/2023-01/ 200017) through the realization of research themes 1702314.