



# 5<sup>th</sup> ICAMST 2017

The 5<sup>th</sup> International Conference  
on Advanced Materials Science  
and Technology 2017

Dear Eko Hadi Sujiono  
(Universitas Negeri Makassar, Makassar 90224. Indonesia),

It is our pleasure to inform you that your paper #1-067 entitled "Effect of Molar Ratio and Sintering Time on Crystal Structure and Surface Morphology of Nd<sub>1+x</sub>FeO<sub>3</sub> oxide Material by Solid Reaction Method" for The International Conference on Advanced Materials Science and Technology 2017 (ICAMST2017) has been ACCEPTED for ORAL PRESENTATION on the conference.

Please be reminded, the full paper must be submitted through our system at <http://kosatem.org/epaper/> by 2017-09-08, following the template [here](#). The length of full paper must be 5 pages. It is also noted that there will be no presentation without full paper submission.

Thank you very much for contributing to the ICAMST2017. We are looking forward to welcoming you to the conference on September 19<sup>th</sup> – 20<sup>th</sup>, 2017 in Makassar.

For more information please contact us at email: [icamst2017@kosatem.org](mailto:icamst2017@kosatem.org). or WA number 085728152871

Kind regards,  
The Conference Chairman



Prof. Dr. Eko Hadi Sujiono, M.Si.

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# The 5<sup>th</sup> International Conference on Advanced Materials Science and Technology **2017**

## **BOOK OF ABSTRACTS**

September 19-20, 2017

Makassar, Indonesia

# **Abstract Book**

## **The 5<sup>th</sup> International Conference on Advanced Materials Science and Technology (ICAMST) 2017**

**September 19-20, 2017  
Makassar, Indonesia**

**Konsorsium Sains Teknologi Material**

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## **Preface**

The Consortium of Materials Science and Technology (KoSaTeM) and Materials Research Society of Indonesia (MRS-Id) in collaboration with HFI and HKI proudly present The 5<sup>th</sup> International Conference on Advanced Materials Science and Technology (ICAMST) on 19<sup>th</sup>-20<sup>th</sup> September 2017 at the Grand Clarion Hotel & Convention Centre, Makassar, Indonesia.

Reflecting back on the four previous ICAMST 2013-2016, which has annually been held in UGM, UNS, UNNES, and UM, and had been attended by about 300 participants. Now in 5<sup>th</sup> ICAMST, the total participants are 250, 265 authors with 108 papers. The 5<sup>th</sup> ICAMST 2017 will address among the many important issues and topics in materials sciences and technology. The topics are: **Nano Science and Technology, Minerals and Complex Materials, Functional Materials, Synthesis and Characterization Techniques, Theoretical and Analysis in Materials, Low-Temperature Physics, and Exotic Materials**, which all the submitted abstract collected in this booklet.

In this 5<sup>th</sup> ICAMST 2017 involved high level scientists as plenary speakers. They are: Prof. Dr. Seiichi Miyazaki (Nagoya University, Japan), Assoc. Prof. Dr. Ariando (National University of Singapore, Singapore), Prof. Dr. Mohamad Deraman (Universiti Kebangsaan Malaysia, Malaysia) and Assoc. Prof. Dr. Risa Suryana (Sebelas Maret University, Indonesia). **The 5<sup>th</sup> International Conference on Advanced Materials Science and Technology (ICAMST)** included invited presentations, and contributed presentations. The conference aims to help participants to develop a more in-depth understanding of recent developments in the materials sciences and technology while providing a forum for analysis and formulation of policy recommendations, it is also expected that from this conference can conduct a good collaboration research among the participants who come from all over the universities around the globe.

In the end, upon the implementation of this conference and the publication of this booklet, on behalf of the committee, our gratitude is sent to plenary speakers, speakers, participants, who have given their kind contribution in order to support this conference. Thank you and have a marvelous stay in Makassar, The City of Anging Mamiri.

5<sup>th</sup> ICAMST Chairman

Prof. Eko Hadi Sujiono

# Parallel Session

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[5-067]

## Effect of Molar Ratio and Sintering Time on Crystal Structure and Surface Morphology of $\text{Nd}_{1+x}\text{FeO}_3$ oxide Material by Solid Reaction Method

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**Abstract.** The effect of molar ratio and sintering time on crystal structure and morphology of  $\text{NdFeO}_3$  oxide material was studied.  $\text{NdFeO}_3$  oxide material formed by chemical preparation with solid reaction method mixing by  $\text{Fe}_2\text{O}_3$  (99.9%) and  $\text{Nd}_2\text{O}_3$  (99.9%) powder. Preparation of sample made by 2 steps. The 1<sup>st</sup> step with molar ratio variation of  $x = -0.1$ ,  $x = -0.2$  and  $x = -0.3$  that synthesized with solid reaction method at a temperature of  $950^\circ\text{C}$  and the 2<sup>nd</sup> step sintering at a temperature of  $600^\circ\text{C}$  for 20 hours and continued for 15 hours without calcination process. Another sample was made by calcination with the same process. Calcination at a temperature of  $600^\circ\text{C}$  made for 40 hours and then the sample with calcination at a temperature of  $400^\circ\text{C}$  made for 20 hours. The quality of material composition was analyzed for each variation using XRD (X-Ray Diffraction) and SEM (Scanning Electron Microscopy). The result of SEM characterization indicates that variation of molar ratio and sintering time has the influence of surface morphology of the samples. The FWHM value for variation of  $x = -0.1$ ,  $x = -0.2$  and  $x = -0.3$  are  $0.13^\circ$ ,  $0.15^\circ$  and  $0.10^\circ$ , respectively.

**Keywords:**  $\text{Nd}_{1+x}\text{FeO}_3$ , Molar Ratio, Sintering Time, Crystal Structure, Surface Morphology, Solid State Reaction Method.

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