

Judul Artikel : Electrical, Magnetic and Microwave Absorption Properties of M-type Barium Hexaferrites ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$)

Penulis : Susilawati, Aris Doyan, H Khair, Muhammad Taufik dan Wahyudi

Nama Seminar/Konferensi/Simposium : Journal of Physics: Conference Series

Penyelenggara/Penerbit : IOP Publishing Ltd

Waktu/Tempat Pelaksanaan : 6-7 September 2017/Yogyakarta, Indonesia

Halaman : 012009-1 -012009-6

ISBN/ISSN : *ISSN: 1742-6596*

Web Prosiding : <https://iopscience.iop.org/issue/1742-6596/1011/1>

URL Dokumen : <https://iopscience.iop.org/article/10.1088/1742-6596/1011/1/012009/pdf>

DOI : <http://doi.org/10.1088/1742-6596/1011/1/012009>

URL Peer Review : <http://eprints.unram.ac.id/17382/>

URL Dokumen Cek Similarity atau Originality : <http://eprints.unram.ac.id/17449/>

LINK INDEX : <https://www.scopus.com/authid/detail.uri?authorId=57205535848>

Tanggal/Waktu : Semester Gasal 2017/2018

Satuan : 1 Makalah/tahun

Volume Kegiatan : 1

Profil Prosiding dan Publisher



scimagojr.com/journalsearch.php?q=130053&tip=sid&clean=0

also developed by scimago: **SCIMAGO INSTITUTIONS RANKINGS**

SJR Scimago Journal & Country Rank

Home Journal Rankings Country Rankings Viz Tools Help About Us

Journal of Physics: Conference Series

Country	United Kingdom -  	70 H Index
Subject Area and Category	Physics and Astronomy Physics and Astronomy (miscellaneous)	
Publisher	IOP Publishing Ltd.	
Publication type	Conferences and Proceedings	
ISSN	17426588, 17426596	
Coverage	2005-2020	
Scope	The open access Journal of Physics: Conference Series (JPCS) provides a fast, versatile and cost-effective proceedings publication service.	

scimagojr.com/journalsearch.php?q=130053&tip=sid&clean=0

Scope The open access Journal of Physics: Conference Series (JPCS) provides a fast, versatile and cost-effective proceedings publication service.

- [Homepage](#)
- [How to publish in this journal](#)
- [Contact](#)
- [Join the conversation about this journal](#)

SJR

2006 2008 2010 2012 2014 2016 2018

Citations per document

2005 2007 2009 2011 2013 2015 2017 2019

● Cites / Doc. (4 years)
● Cites / Doc. (3 years)
● Cites / Doc. (2 years)

2005 2007 2009 2011 2013 2015 2017 2019

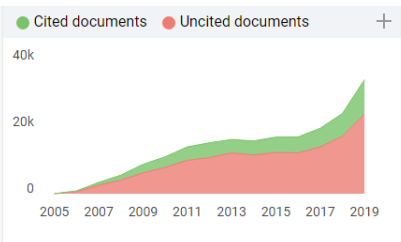
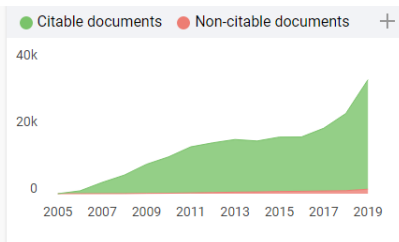
2005 2007 2009 2011 2013 2015 2017 2019

External Cites per Doc **Cites per Doc**

2005 2007 2009 2011 2013 2015 2017 2019

% International Collaboration

2005 2007 2009 2011 2013 2015 2017 2019



**Journal of Physics:
Conference Series**

Not yet assigned
quartile

SJR 2019
0.23

powered by scimagojr.com

← Show this widget in
your own website

Just copy the code below
and paste within your html
code:

```
<a href="https://www.scimagojr.com"
```

Artikel tulisan author yang terbit di Journal of Physics: Conference Series

← → ↻ iopscience.iop.org/issue/1742-6596/1011/1

Apps Gmail YouTube Maps Gmail Edmodo Quiz | Edmodo Google Scholar WhatsApp Web Sci-Hub: removing... Quiz | Edmodo Quiz | Edmodo

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).

IOPSCIENCE Journals Books Publishing Support Login

Journal of Physics: Conference Series

Table of contents

Volume 1011
2018
◀ Previous issue Next issue ▶

The International Conference on Theoretical and Applied Physics 6–8 September 2017, Yogyakarta, Indonesia
Accepted papers received: 16 April 2018
Published online: 09 May 2018

[Open all abstracts](#)

Preface

OPEN ACCESS 011001
The International Conference on Theoretical and Applied Physics
+ Open abstract | View article | PDF

OPEN ACCESS 011002
List of Committee

OPEN ACCESS 012009
Electrical, Magnetic and Microwave Absorption Properties of M-type Barium Hexaferrites (BaFe_{12-2x}Co_xNi₂O₁₉)
Susilawati, A Doyan, H Khair, M Taufiq and Wahyudi
+ Open abstract | View article | PDF

OPEN ACCESS 012010
EXAFS Study on LiFePO₄ Powders Produced From Two Sol-Gel Routes
V S I Negara, C Latif, W Wongtepa and S Pratapa
+ Open abstract | View article | PDF

OPEN ACCESS 012011
Growth of CH₃NH₃PbI₃ Perovskite on Stainless Steel Substrate Layered by ZnO Nanoparticles Using One-Step Spin Coating Route
A Fuad, A A Fibriyanti, N Mufti, A Taufiq, S Maryam and N Hidayat
+ Open abstract | View article | PDF



OPEN ACCESS 012012
Microwave Hydrothermal Synthesis of Reduced Graphene Oxide: Effects of Microwave Power and Irradiation Time
La Agusua, La Ode Ahmad, Desna Anggara, Alimin, Seitaro Mitsudo, Yutaka Fujii and Hiromitsu Kikuchi
+ Open abstract | View article | PDF

OPEN ACCESS 012013
Electrospinning β-SiC fibers from SiC nanoparticles dispersed in various polymer solutions as the electrospinning agents
A Fuad, N Fatmiani, C I Yogihati, A Taufiq and E Latifah
+ Open abstract | View article | PDF

OPEN ACCESS 012014
Effect of Temperature and Time of Sintering to Doping Ag On Microstructure of Perovskite Material (La_{1-x}Ag_x0.8Ca_{0.2}MnO₃)
B Kurniawan, S D Rosanti, R Kamila, N B Sahara, D S Razaq, E P Yandra and T Komala
+ Open abstract | View article | PDF

JOURNAL LINKS

- [Journal home](#)
- [Information for organizers](#)
- [Information for authors](#)
- [Search for published proceedings](#)
- [Contact us](#)
- [Reprint services from Curran Associates](#)



This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our [Privacy and Cookies policy](#).

Journal of Physics: Conference Series

PAPER • OPEN ACCESS

Electrical, Magnetic and Microwave Absorption Properties of M-type Barium Hexaferrites ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$)

Susilawati¹, A Doyan², H Khair³, M Taufik² and Wahyudi²

Published under licence by IOP Publishing Ltd

[Journal of Physics: Conference Series, Volume 1011, The International Conference on Theoretical and Applied Physics 6-8 September 2017, Yogyakarta, Indonesia](#)

Citation Susilawati et al 2018 *J. Phys.: Conf. Ser.* **1011** 012009

 [Article PDF](#)

References

[+ Article information](#)

Abstract

M-type barium hexaferrites synthesis with Co-Ni doping ion ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$) based on natural iron sand of Loang Balok beach, Lombok, Indonesia, to be applied as a microwave absorbent material using co-precipitation method. The materials used in the synthesis process are magnetite minerals (Fe_3O_4 and Fe_2O_3), 12M HCl, NH_4OH 37%, $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ and $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$. This research to investigate the

398 Total downloads



Turn on MathJax

Share this article



Abstract

References

Related content

JOURNAL ARTICLES

[Ni and Zn Substituted M-type Barium Hexaferrite Processed by Sol-Gel Auto Combustion Method](#)

[Magnetic and microwave absorbing properties of \$\text{BaFe}_{12-2x}\text{Co}_x\text{Zn}_x\text{O}_{19}\$ \(\$x = 0.0; 0.2; 0.4; 0.6\$ \) nanocrystalline](#)

[Enhancement of microwave absorption properties on modified kapton film by ion implantation process](#)

[Magnetic and structural characterization of nanosized \$\text{BaCo}_x\text{Zn}_{1-x}\text{Fe}_{16}\text{O}_{23}\$ hexaferrite in the vicinity of spin reorientation transition](#)

[Radiation-thermal synthesis of W-type hexaferrites](#)

PDF

Help

Journal of Physics: Conference Series

PAPER • OPEN ACCESS

Electrical, Magnetic and Microwave Absorption Properties of M-type Barium Hexaferrites ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$)

To cite this article: Susilawati et al 2018 *J. Phys.: Conf. Ser.* **1011** 012009

View the [article online](#) for updates and enhancements.

Related content

[Ni and Zn Substituted M-type Barium Hexaferrite Processed by Sol-Gel Auto Combustion Method](#)
Widyastuti, Nia Sasria, A Marsha Alviani et al

[Magnetic and microwave absorbing properties of \$\text{BaFe}_{12-2x}\text{Co}_x\text{Zn}_x\text{O}_{19}\$ \(\$x = 0.0; 0.2; 0.4; 0.6\$ \) nanocrystalline](#)
E Handoko, S Iwan, Setia Budi et al

[Enhancement of microwave absorption properties on modified kapton film by ion implantation process](#)
S Purwanto, W A Adi and Y Taryana

Electrical, Magnetic and Microwave Absorption Properties of M-type Barium Hexaferrites ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$)

Susilawati¹, A Doyan¹, H Khair¹, M Taufik², Wahyudi²

¹Magister Science, Post Graduate of Mataram University, Mataram, Indonesia

²Faculty of Education and Teacher Training of Mataram University, Mataram, Indonesia

Email: susilawatihambali@yahoo.co.id

Abstract. M-type barium hexaferrites synthesis with Co-Ni doping ion ($\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$) based on natural iron sand of Loang Balok beach, Lombok, Indonesia, to be applied as a microwave absorbent material using co-precipitation method. The materials used in the synthesis process are magnetite minerals (Fe_2O_3 and Fe_3O_4), 12M HCl, NH_4OH 37%, $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ and $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$. This research to investigate the effect of doping ion concentration variation ($x = 0.0, 0.6$ and 1.0) and calcination temperature ($T = 80, 600,$ and 800°C) on electrical and magnetic properties and microwave absorption as well. The samples were characterized using Vibrating Sample Magnetometer (VSM) and Network Vector Analyzer (VNA). The result from VSM showed that the coercivity value decreased when doping ion concentration and calcination temperature increased (0.151 Tesla at 600°C for $x = 0.0$ and 0.044 Tesla at 800°C for $x = 1.0$). The value of magnetic saturation and the magnetic remanence increased with increasing ion concentration ($M_s = 0.327$ emu/g at $x = 0.0$ increased to 35.4 emu/g at $x = 1.0$) and $M_r = 0.148$ emu/g for $x = 0.0$ increased to 15.6 emu/g at $x = 1.0$, this indicates that the sample has been soft magnetic. The result from VNA showed that the electrical conductivity values measured in the range 8.0-15.0 GHz indicate that the sample is a semiconductor (6.149×10^{-6} - 5.975×10^{-4} S/cm). It also showed that the microwave absorption properties increased at higher concentration of doping ions and the calcination temperature would increase the value of Reflection Loss (RL). The maximum RL value of the sample is -14.47 dB at 12.38 GHz, and the absorption coefficient of 96.43%. These results indicate that the $\text{BaFe}_{12-2x}\text{Co}_x\text{Ni}_x\text{O}_{19}$ sample can be applied as a microwave absorbent material on X-band to Ku-band frequency.

Keywords: Barium M-Hexaferrites, electrical and magnetic properties, natural iron sand, microwave absorber

1. Introduction

The rapid technological developments have an impact on increasing pollution of electromagnetic interferences (EMI) in the environment that can affect life, so research on microwave absorbent is an important topic. One of the materials that can be utilized as a microwave absorbent is Barium M-Hexaferrites (BaM). The ferrites (Fe) is basic material of synthesizing permanent magnet BaM, in which the iron element is obtained by separating the magnetite material from the natural iron sand. The utilization of natural iron sand is currently less optimal because it is only used as a mixture of cement. In fact, the natural iron sand contains iron oxide in the form of magnetite (Fe_3O_4), maghemite ($\text{Y-Fe}_2\text{O}_3$) and hematite ($\alpha\text{-Fe}_2\text{O}_3$) which has the potential to be processed into various products with higher economic value. The natural iron sand used in this study came from the Loang Balok beach in Sekarbela Sub-district, Mataram City, Lombok, Indonesia. The BaM has a hexagonal molecular structure ($\text{BaFe}_{12}\text{O}_{19}$), high saturation magnetization (78 emu/g), large coercivity field (6700 Oe), high Curie temperature (450°C), chemical stability and good corrosion resistance, with magnetic and electric properties adjustable



E-mail dengan ICTAP 2017

28/1/2021

Yahoo Mail - Abstrak Atas nama Susilawati.Ph.D Universitas Mataram

Abstrak Atas nama Susilawati.Ph.D Universitas Mataram

Dari: Susilawati Hambali (susilawatihambali@yahoo.co.id)

Kepada: ictap@fisika.or.id

Cc: arisdoyan@yahoo.co.id

Tanggal: Kamis, 29 Juni 2017 13.03 WITA

Selamat siang, berikut saya lampirkan file abstrak atas nama Dra.Susilawati,M.Si,Ph.D dari Universitas Mataram. Sekian dan terimakasih.



Abstrak susilawati Universitas Mataram.docx
15.9kB

28/1/2021

Yahoo Mail - Problem in Full Paper Submission

Problem in Full Paper Submission

Dari: ictap@fisika.or.id

Kepada: supardimsi@yahoo.co.id; supriyadi@mail.unnes.ac.id; susilawatihambali@yahoo.co.id; dewang1163@gmail.com; tasrief@unhas.ac.id; ufairaseptyasari@gmail.com; muksin.umar@unsyiah.ac.id; kultsum02@gmail.com; vamellia0706@gmail.com; vierta.saraswati@mail.ugm.ac.id; wardatua@gmail.com; prihastywilda@gmail.com; wilujenglaksmi@gmail.com; wbnuridin@gmail.com; yennikhairanilubis@gmail.com

Tanggal: Sabtu, 19 Agustus 2017 23.29 WITA

Dear all participants of ICTAP 2017

On the behalf of ICTAP committee, we would like to inform you that you may be having problem for uploading the full paper in our system. We are very sorry for any inconvenience. Our website is sometime down in these two days due to bad hosting from our host. We are in continuous touch with them as to when we can expect a solution.

Please send your full paper to ictap@fisika.or.id and ahmad_k@ugm.ac.id if you could not access the submission website.

If there are any themes related issues that need to be addressed,now or in the future, please don't hesitate to contact ictap@fisika.or.id or ahmad_k@ugm.ac.id.

best regards,

ICTAP committee

Full Paper and Early Bird Deadline Extension

Dari: ictap@fisika.or.id

Kepada: supardimsi@yahoo.co.id; supriyadi@mail.unnes.ac.id; susilawatihambali@yahoo.co.id;
dewang1163@gmail.com; tasrief@unhas.ac.id; ufairaseptyasari@gmail.com; muksin.umar@unsyiah.ac.id;
kultsum02@gmail.com; vamellia0706@gmail.com; vierta.saraswati@mail.ugm.ac.id; wardatua@gmail.com;
prihastywilda@gmail.com; wilujenglaksmi@gmail.com; wbnurdin@gmail.com; yennikhairanilubis@gmail.com

Tanggal: Minggu, 20 Agustus 2017 19.00 WITA

Dear All Authors and Participant of ICTAP 2017

Due to many requests from authors, ICTAP 2017 has extended the full paper submission deadline to August 27, 2017 to give you more time to prepare and share your research. The early bird registration is also extended to August 25, 2017.

For registration payment please see <http://conference.fisika.or.id/Events/detailread/7/13> and to submit your full paper please follow attached file or send to ictap@fisika.or.id and ahmad_k@ugm.ac.id.
Thank you for your cooperation.

ICTAP Committee



Full Paper Submission Guideline.docx
200.9kB

[ICTAP]Your Paper has been ACCEPTED

Dari: ICTAP (no-reply@fisika.or.id)

Kepada: susilawatihambali@yahoo.co.id; arisdoyan@yahoo.co.id; ictap@fisika.or.id

Tanggal: Kamis, 10 Mei 2018 06.58 WITA

Dear Dr. Susilawati Susilawati,
Congratulation!!!

It is our pleasure to inform you that your paper #7-066 entitled "INFLUENCE OF CO-NI DOPING ION AND CALCULATION TEMPERATURE TO THE MARIAFERITE BARIUM PROPERTIES BASED ON NATURAL IRON SAND AS MATERIALS OF MICRO WAVES" has been ACCEPTED for the ICTAP Conference.

The review of the papers was a challenging task and each of the manuscripts for this meeting was reviewed by several experts in the field.

The paper has been published on JPCS by IOP publishing (<http://iopscience.iop.org/issue/1742-6596/1011/1>).

Thank you very much for contributing to the ICTAP. We are looking forward to welcoming you to the conference. For more information please contact us at email:ictap@fisika.or.id.

--

Kind regards,
The Conference Chairs

[ICTAP]Your Paper has been ACCEPTED WITH MAJOR REVISIONS

Dari: ICTAP (no-reply@fisika.or.id)

Kepada: susilawatihambali@yahoo.co.id; ictap@fisika.or.id

Tanggal: Rabu, 15 November 2017 14.50 WITA

Dear Dr. Susilawati Susilawati,

Your paper #7-066 entitled "INFLUENCE OF CO-NI DOPING ION AND CALCULATION TEMPERATURE TO THE MARIAFERITE BARIUM PROPERTIES BASED ON NATURAL IRON SAND AS MATERIALS OF MICRO WAVES" has been subjected to a review process by our reviewers who are experts in the related fields.

Based on the reviewers recommendations, I am delighted to inform you that your manuscript has been ACCEPTED WITH MAJOR REVISIONS for our conference.

You have to login to <https://conference.fisika.or.id/> for detailed information such as reviewers

comment/recomendation. **Authors must resubmit the revised full paper by November 25, 2017 (12 pm at the latest). Please note that your manuscript must comply with journal's template. Failing to do so will delay the publication process**

Thank you very much for submitting your article to the ICTAP. I look forward to receiving the revised version of your manuscript. For more information please contact us at email:ictap@fisika.or.id.

--

Kind regards,
The Conference Chairs