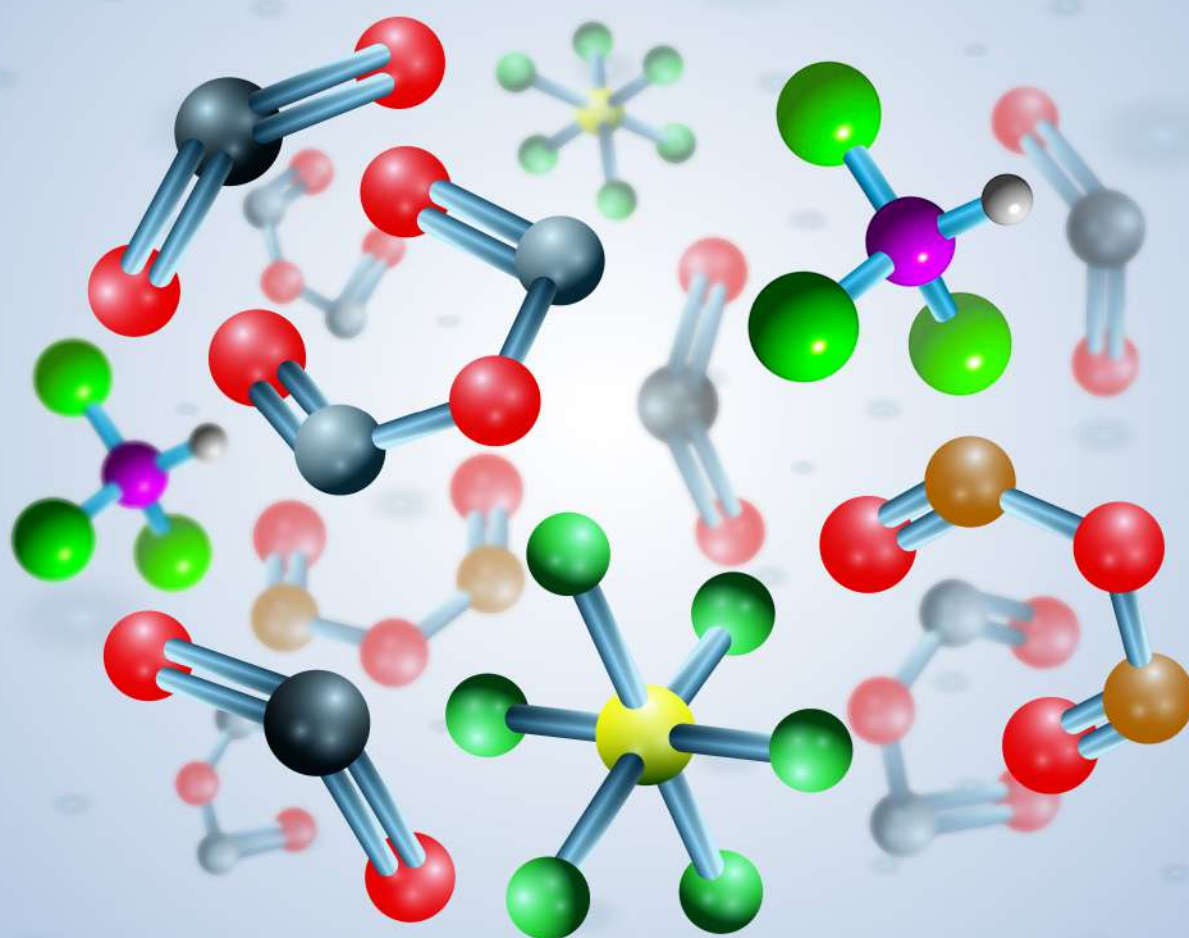


# Journal of Applied Materials and Technology

J. Appl. Mat. and Tech



Volume 1 | Issue 2 | March 2020

**NT** APPLIED  
MATERIALS  
AND TECHNOLOGY  
SOCIETY

## Research Article

Naser Al Amery, et.al

*Enhancing Acid Dye Adsorption by Updated  
Version UiO-66*

**EDITORIAL BOARD****Editor in Chief :**

Prof. Dr. Edy Saputra, S.T., M.T, Universitas Riau, Indonesia [ID orcid.org/0000-0001-6430-9072](https://orcid.org/0000-0001-6430-9072)

**Vice Editor :**

Dr. Iswadi Hasyim Rosma, Universitas Riau, Indonesia [ID orcid.org/0000-0002-8808-7694](https://orcid.org/0000-0002-8808-7694)

**IT Support and Production Manager :**

Dr. Ridwan, Aff. M. ASCE, Universitas Riau, Indonesia [ID orcid.org/0000-0002-4582-0251](https://orcid.org/0000-0002-4582-0251)

**Member of Editorial Board :**

Prof. Ir. Dr. Nor Aishah Binti Saidina Amin, Universiti Teknologi Malaysia [ID orcid.org/0000-0003-2299-9401](https://orcid.org/0000-0003-2299-9401)

Dr. Abubakar Abdulkarim, Ahmadu Bello University Zaria, Nigeria [ID orcid.org/0000-0003-0303-6327](https://orcid.org/0000-0003-0303-6327)

Dr. Hussein Rasool Abid, University of Kerbala, Karbala, Iraq [ID orcid.org/0000-0003-3368-371X](https://orcid.org/0000-0003-3368-371X)

Dr. Thamer Alomayri, Umm Al Qura University, Makkah, Saudi Arabia [ID orcid.org/0000-0001-6604-5170](https://orcid.org/0000-0001-6604-5170)

Prof. Amun Amri, Ph.D., Universitas Riau, Indonesia [ID orcid.org/0000-0001-8896-6405](https://orcid.org/0000-0001-8896-6405)

Dr. Muhammad Rizwan Azhar, Edith Cowan University, Australia [ID orcid.org/0000-0002-5938-282X](https://orcid.org/0000-0002-5938-282X)

Prof. Syaiful Bahri, M.Si, Ph.D., AMICHEM, Universitas Riau, Indonesia [ID orcid.org/0000-0001-9705-8927](https://orcid.org/0000-0001-9705-8927)

Prof. Zuchra Helwani, Universitas Riau, Indonesia [ID orcid.org/0000-0002-5515-1952](https://orcid.org/0000-0002-5515-1952)

Dr. Brian Boswell, Curtin University, Perth, Australia

Dr. Diego Carro-López, Universidade da Coruña, A Coruna, Spain [ID orcid.org/0000-0001-5343-6762](https://orcid.org/0000-0001-5343-6762)

Dr. Ian J Davies, Curtin University, Perth, Australia [ID orcid.org/0000-0001-7076-9948](https://orcid.org/0000-0001-7076-9948)

Dr. Xiaoguang Duan, The University of Adelaide, Australia [ID orcid.org/0000-0001-9635-5807](https://orcid.org/0000-0001-9635-5807)

Prof. Ida Idayu Muhammad, Ph.D., C.Eng, Universiti Teknologi Malaysia, Malaysia [ID orcid.org/0000-0002-0457-9385](https://orcid.org/0000-0002-0457-9385)

Prof. Francisco Gonzalez-Longatt, University of South-Eastern Norway, Norway [ID orcid.org/0000-0002-7157-9844](https://orcid.org/0000-0002-7157-9844)

Dr. Chi-Hsien Huang, Mingchi Institute of Technology, Taipei, Taiwan [ID orcid.org/0000-0003-0369-3124](https://orcid.org/0000-0003-0369-3124)

Prof. Juliana De Carvalho Izidoro, Instituto de Pesquisas Energeticas e Nucleares, Brazil [ID orcid.org/0000-0002-3466-5196](https://orcid.org/0000-0002-3466-5196)

Dr. Yaser Jemaa, Liverpool John Moores University, Liverpool, United Kingdom

Dr. Zhong-Tao Jiang, Murdoch University, Australia [ID orcid.org/0000-0002-4221-6841](https://orcid.org/0000-0002-4221-6841)

Dr. Oki Muraza, CENT, King Fahd University of Petroleum & Minerals, Saudi Arabia [ID orcid.org/0000-0002-8348-8085](https://orcid.org/0000-0002-8348-8085)

Dr. Wen-Da Oh, Universiti Sains Malaysia, Penang, Malaysia [ID orcid.org/0000-0002-1848-7617](https://orcid.org/0000-0002-1848-7617)

Dr. Monita Olivia, ST, M.Sc, Universitas Riau, Indonesia [ID orcid.org/0000-0003-4516-7085](https://orcid.org/0000-0003-4516-7085)

Wenchao Peng, Ph.D., Tianjin University, Tianjin, China [ID orcid.org/0000-0002-1515-8287](https://orcid.org/0000-0002-1515-8287)

M. Mahbubur Rahman, Ph.D., Jahangirnagar University, Dhaka, Bangladesh [ID orcid.org/0000-0002-6778-7931](https://orcid.org/0000-0002-6778-7931)

Dr. Gauthier Rydzek, National Institute for Materials Science Tsukuba, Tsukuba, Japan

Dr. Ari Sandhyavetri, MSc, Universitas Riau, Indonesia [ID orcid.org/0000-0002-3174-5502](https://orcid.org/0000-0002-3174-5502)

Dr. Chia-Hung Su, Mingchi Institute of Technology, Taipei, Taiwan [ID orcid.org/0000-0003-1118-8187](https://orcid.org/0000-0003-1118-8187)

Yunjin Yao, Ph.D., Hefei University of Technology, China [ID orcid.org/0000-0002-5462-4973](https://orcid.org/0000-0002-5462-4973)

## REVIEWER

- Prof. Amun Amri, Ph.D., Universitas Riau, Indonesia [ID orcid.org/0000-0001-8896-6405](https://orcid.org/0000-0001-8896-6405)
- Dr. Hussein Rasool Abid, University of Kerbala, Karbala, Iraq [ID orcid.org/0000-0003-3368-371X](https://orcid.org/0000-0003-3368-371X)
- Dr. Muhammad Rizwan Azhar, Edith Cowan University, Australia [ID orcid.org/0000-0002-5938-282X](https://orcid.org/0000-0002-5938-282X)
- Prof. Zuchra Helwani, Universitas Riau, Indonesia [ID orcid.org/0000-0002-5515-1952](https://orcid.org/0000-0002-5515-1952)
- Dr. Xiaoguang Duan, University of Adelaide, Australia [ID orcid.org/0000-0001-9635-5807](https://orcid.org/0000-0001-9635-5807)
- Dr. Oki Muraza, CENT, King Fahd University of Petroleum & Minerals, Saudi Arabia [ID orcid.org/0000-0002-8348-8085](https://orcid.org/0000-0002-8348-8085)
- Dr. Wen-Da Oh, Universiti Sains Malaysia, Penang, Malaysia [ID orcid.org/0000-0002-1848-7617](https://orcid.org/0000-0002-1848-7617)
- Wenchao Peng, Ph.D., Tianjin University, Tianjin, China [ID orcid.org/0000-0002-1515-8287](https://orcid.org/0000-0002-1515-8287)
- Yunjin Yao, Ph.D., Hefei University of Technology, China [ID orcid.org/0000-0002-5462-4973](https://orcid.org/0000-0002-5462-4973)
- Dr. Monita Olivia, ST, M.Sc, Universitas Riau, Indonesia [ID orcid.org/0000-0003-4516-7085](https://orcid.org/0000-0003-4516-7085)
- Prof. Juliana De Carvalho Izidoro, Instituto de Pesquisas Energeticas e Nucleares, Brazil [ID orcid.org/0000-0002-3466-5196](https://orcid.org/0000-0002-3466-5196)
- Dr. Ian J Davies, Curtin University, Perth, Australia [ID orcid.org/0000-0001-7076-9948](https://orcid.org/0000-0001-7076-9948)
- Sylvia Putri Utami, Ph.D, University of Tsukuba, Tsukuba, Ibaraki, Japan [ID orcid.org/0000-0002-8183-2778](https://orcid.org/0000-0002-8183-2778)
- Reni Suryanita, Ph.D, Universitas Riau, Indonesia [ID orcid.org/0000-0002-4474-2511](https://orcid.org/0000-0002-4474-2511)
- Azriyenni Azhari Zakri, Ph.D Universitas Riau, Indonesia [ID orcid.org/0000-0001-6757-420X](https://orcid.org/0000-0001-6757-420X)
- Dr. Eng. Sidiq Syamsul Hidayat, Politeknik Negeri Semarang, Indonesia
- Dr. Hamzah Eteruddin, Universitas Lancang Kuning, Indonesia [ID orcid.org/0000-0002-4778-168X](https://orcid.org/0000-0002-4778-168X)
- Dr. Abubakar Abdulkarim, Ahmadu Bello University Zaria, Nigeria [ID orcid.org/0000-0003-0303-6327](https://orcid.org/0000-0003-0303-6327)
- Dr. Chia-Hung Su, Mingchi Institute of Technology, Taipei, Taiwan [ID orcid.org/0000-0003-1118-8187](https://orcid.org/0000-0003-1118-8187)
- Panca Setia Utama, Ph.D, Universitas Riau, Indonesia [ID orcid.org/0000-0002-6829-1321](https://orcid.org/0000-0002-6829-1321)
- Prof. Ir. Dr. Nor Aishah binti Saidina Amin, Universiti Teknologi Malaysia [ID orcid.org/0000-0003-2299-9401](https://orcid.org/0000-0003-2299-9401)
- Dr. Chi-Hsien Huang, Mingchi Institute of Technology, Taipei, Taiwan [ID orcid.org/0000-0003-0369-3124](https://orcid.org/0000-0003-0369-3124)
- Evelyn, Ph.D Universitas Riau, Indonesia [ID orcid.org/0000-0001-6890-3271](https://orcid.org/0000-0001-6890-3271)
- Prof. Syaiful Bahri, M.Si, Ph.D., AMIChemE, Universitas Riau, Indonesia [ID orcid.org/0000-0001-9705-8927](https://orcid.org/0000-0001-9705-8927)
- Dr. Thamer Alomayri, Umm Al Qura University, Makkah, Saudi Arabia [ID orcid.org/0000-0001-6604-5170](https://orcid.org/0000-0001-6604-5170)

## Overview

### Aims and Scope

Journal of Applied Materials and Technology, is aimed at capturing current development and initiatives in applied material and technology. The journal will publish at least two issues (Bi-Annually. First issue in March and Second in September) each year, the journal showcases innovative applied material and technology, providing an opportunity for science and technology transfer and collaboration. Journal of Applied Materials and Technology focuses on the publication in the area of material science, material engineering and technology, renewable energy, sustainable material, and construction method.

### Readership

Readership will include researchers working in the areas of materials scientists, solid-state physicists, advanced batteries, fuel cells, materials application, mechanical, civil, and electronic engineers.

### Crossmark

As a member of Crossref, JAMT participates in Crossmark, a multi-publisher initiative, to provide a standard way for readers to locate the authoritative version of a document. The appearance of the Crossmark logo on a document indicates that JAMT is committed to maintaining the content it publishes and to alerting readers to changes if and when they occur.

Clicking the Crossmark logo on a document will tell you its current status and may also give you additional publication-record information about the document. If an update exists, the status information will include a Crossref DOI link to the updated document and any associated documents such as Errata, Expressions of Concern, and Retractions.

### Copyright

This work is licensed under a Creative Commons Attribution 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>

### Disclaimer

Statements of fact and opinion in the articles in the Journal of Applied Materials and Technology are those of the respective authors and contributors and not of Journal of Applied Materials and Technology or the institution of Applied Materials and Technology Society and Faculty of Engineering, Universitas Riau. Neither Applied Materials and Technology Society and Faculty of Engineering, Universitas Riau nor Journal of Applied Materials and Technology make any representation, express or implied, in respect of the accuracy of the material in this journal and cannot accept any legal responsibility or liability for any errors or omissions that may be made. The reader should make her or his own evaluation as to the appropriateness or otherwise of any experimental technique described.

## Table of Contents

### Journal of Applied Materials and Technology

Volume 1 - Issue 2 – March 2020 - ISSN: 2721-446X - eISSN:2686-0961

#### Editorial Preface

##### V Editorial Preface for Journal of Applied Materials and Technology

Edy Saputra, Universitas Riau, Indonesia

#### Research Article

- 54 Enhancing Acidic Dye Adsorption by Updated Version of UiO-66**  
Naser Al Amery, Shaomin Liu, Chemical Engineering, WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Australia  
Hussein Rasool Abid, Environmental Department, Applied Medical Science, University of Karbala, Iraq  
Shaobin Wang, School of Chemical Engineering, University of Adelaide, Australia
- 63 Load Modeling Techniques in Distribution Networks: a review**  
Musa Mohammed, Abubakar Abdulkarim, Adamu S. Abubakar, Abdullahi B. Kunya, and Yusuf Jibril, Department of Electrical Engineering Ahmadu Bello University, Zaria
- 71 Performance Comparisons Of Hybrid Fuzzy-LQR And Hybrid PID-LQR Controllers On Stabilizing Double Rotary Inverted Pendulum**  
Jamilu Kamilu Adamu, Federal Ministry of Power, Works and Housing, Nigeria  
Mukhtar Fatihu Hamza, Department of Mechatronics Engineering, Bayero University Kano, Nigeria  
Abdulbasid Ismail Isa, Department of Electrical and Electronics Engineering, Usmanu Danfodiyo University Sokoto, Nigeria
- 81 Spent Bleaching Earth Supported CeFeO<sub>3</sub> Perovskite for Visible Light Photocatalytic Oxidation of Methylene Blue**  
Edy Saputra, Panca Setia Utama, Irdoni, Marihot Daniield Vyendri Simatupang, Department of Chemical Engineering, Riau University, Pekanbaru 28293, Indonesia  
Barata Aditya Prawiranegara, Department of Chemistry, Faculty of Mathematics and Natural Sciences Universitas Riau, Pekanbaru 28293, Indonesia  
Hussein Rasool Abid, Chemical Engineering, WA School of Mines: Minerals, Energy and Chemical Engineering, Curtin University, Australia  
Oki Muraza, Center of Excellence in the Department of Nanotechnology and Chemical Engineering, King Fahd University of Petroleum and Minerals, Dhahran, 31261, Saudi Arabia
- 88 Synthesis of Calcium Silicate Hydrate Compounds from Wet Flue Gas Desulfurization (FGD) Waste**  
Denise Alves Fungaro, Lucas Grosche and Juliana de C. Izidoro, Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP, 05508-000, Brazil

## PREFACE


The editorial board is pleased to announce that the second issue of the first volume of the Journal of Applied Materials and Technology is now published and available online. The journal is affiliated with the Faculty of Engineering, the University of Riau, Indonesia, but its authors, reviewers, editorial board and readers represent all regions of the world.

This second issue comprises five articles and categorized into the following groups, namely: synthesis modified UiO-66, electrical load modeling, hybrid controller, Calcium Silicate Hydrate Compounds, and CeFeO<sub>3</sub> Perovskite. The articles certainly will have a significant influence on materials and technologies industries related to the topic.

JAMT encourage submissions under the area of material science, material engineering and technology, renewable energy, sustainable material, and construction method. The selected, high-quality reviews, research reports at the state of the art of science, and material technology are also welcomed. At least two potential reviewers are invited to evaluate the papers. The review process is a single-blind method, meaning that the authors do not know the names of the reviewers.

Authors should understand that virtually every paper that is eventually accepted goes through at least one round of revisions, and sometimes goes to the second round. During this phase of the process, it is essential to give a serious response to the critical comments raised by reviewers. If at all possible, the original reviewers will go over the new version, but revision does not guarantee acceptance.

Finally, on behalf of the editorial board member, I would like to give a high appreciation to the authors and reviewers who have contributed to this issue.

**Edy Saputra**, Editor in Chief, *Journal of Applied Material and Technology*  [orcid.org/0000-0001-6430-9072](https://orcid.org/0000-0001-6430-9072)