

# NANOCAT

# ANNUAL REPORT

# 2021



# VISION

To be an internationally renowned and recognized CoE in Catalysis and Nanomaterials

# MISSION

To advance technological excellence in multidisciplinary research for address the key challenges of 21st century

NANOCAT Research Centre  
Annual Report 2021

## **EDITORIAL TEAM**

Prof. Dr. Mohd Rafie Bin Johan (Director)

Dr. Marlinda Ab Rahman (Head of Editorial Team)

Lia Zaharani (Designer)

Mohamad Safuan Kamaruddin (Photographer)

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## DIRECTOR'S FOREWORD

Nanotechnology and Catalysis Research Center (NANOCAT) has been established since 2001 at Universiti Malaya as a specialized center of excellence (COE) in nanotechnology and catalysis. Our vision is to be an internationally renowned and recognized CoE in Catalysis and Nanomaterials. NANOCAT offers students, researchers and academics a wonderful place to study and research. It is highly interdisciplinary in that chemists, biologists, physicists and engineers all work together to create amazing new materials with remarkable properties and to develop devices that change the way we live. They are also encouraged to carry out their individual scientific research resulting in publications in the best journals. NANOCAT also has strong collaboration with the industrial partner such as Petronas, Hartalega, Oleon and others. We have access to the latest analytical equipment including field emission scanning electron microscopes, x-ray diffraction, BET analysis, various spectroscopies, chemical reactors and thermal analysis methods.

**Prof. Dr. Mohd Rafie Bin Johan**

**Director of Nanotechnology & Catalysis Research Centre**

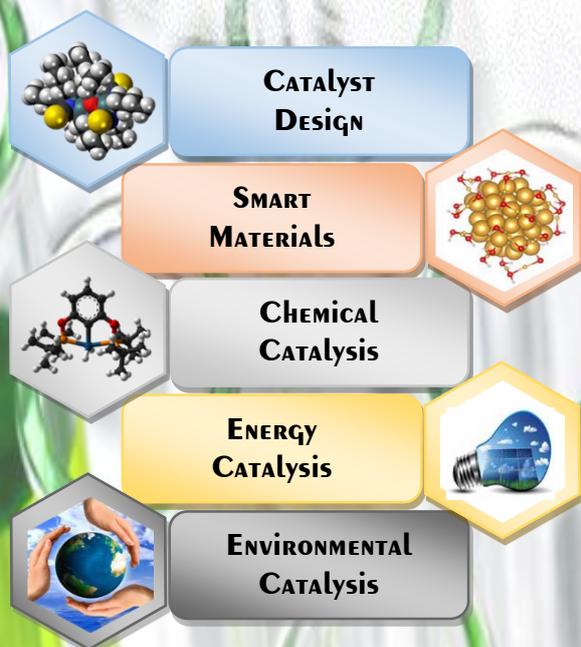


# ABOUT NANOCAT

NANOCAT (Nanotechnology and Catalysis Research centre) is a PTj incorporated by UM in 2012, a UMCoE. Its mission is to be a world leader in “catalysis and nanotechnology” coining sustainability and green technology. NANOCAT research thrust is deploying catalysis to support energy, chemical synthesis, environment pollution and global warming mitigation as well as designing smart materials as catalyst, sensor, nanocoating, and nanocomposite.

NANOCAT was given a status of HICoE Potential in 2013, in catalysis. The Centre has strived to attain a national status for HICoE (MOHE) as well as NanoCentre (NNC, MOSTI) with strong support and commitment from Universiti Malaya. In the last 5 years, 2017 to 2021, it witnessed a pronounced explosion in its productivity in all aspects.

## SCOPE OF RESEARCH



## RESEARCH PROJECT

As a national research center focusing on nanotechnology and catalysis, NANOCAT has come out with a strategic planning in research grant application. With that in mind, the emphasis has been given to five niche areas of NANOCAT which are catalyst design, energy, chemical synthesis, and environmental mitigation as well as smart materials.

# MANAGEMENT STAFF



**Prof. Dr. Mohd Rafie Bin Johan**  
**Director of Nanotechnology & Catalysis  
Research Centre**

Mohd Rafie Johan was a Professor of Materials Engineering in Department of Mechanical Engineering, University of Malaya. Currently, he is Director of Nanotechnology and Catalysis Research Center (NANOCAT), University of Malaya. He gained his PhD in 2005 from Department of Physics, University of Malaya. He is the author in 372 peer-reviewed (ISI) papers with H-index 32. Prof. Rafie is well recognized internationally in the field of Nanotechnology. Testimony to this, he has been elected in Evaluation Panels for AET and ITR clusters and UPGP and for grants applications at UMRG, PRGS, FRGS and Qatar Foundation. He has been appointed as a panel for Yang di Pertuan Agong Scholarship and COMSTECs for Islamic Organization Country for evaluation of best scientific papers for Muslim Scientist. He also secured funding as PI from the University of Malaya and Malaysian Government. For the past two years, Prof Rafie has been appointed the editor-in-chief of The International Conference of Science and Engineering Materials (ICOSEM). Prof Rafie has been invited as a speaker to numerous talks and conferences and also Guest Editor for Symmetry (ISI journal) and editor for Asean Engineering Journal. He leads Nanomaterials Engineering Research Group of 20 PhD and 24 Master. These supervised students span over a quite broad scientific area going from science (chemistry, physics, material science, biology) to engineering (chemical, material).

Wan Jefrey Basirun is currently a Professor in Electrochemistry and Physical Chemistry started his career in the department of Chemistry, University Malaya as the department undergraduate tutor in 1991 upon graduation in bachelors in Science with honors majoring in Chemistry, and proceeded with a PhD degree in electrochemistry in 1997 from the University of Southampton in United Kingdom in 1997. Since joining the active research groups in the department of Chemistry in 1997, he has supervised a total of 26 PhD and 7 Master students to completion, in addition have authored and co-authored more than 287 papers in journals indexed ISI web of knowledge, with a H-Index of 42. His appointment as the Deputy Director in NANOCAT in July 2018 is aimed to strengthen NANOCAT's niche research areas. His research interest is on the use of nanomaterials and nanocomposites in catalytic processes, sensors, biomaterials and energy conversion and storage.



**Prof. Dr. Wan Jefrey Basirun**  
**Deputy Director of Nanotechnology &  
Catalysis Research Centre**

# ACADEMIC STAFF



**Assoc. Prof. Dr. Juan Joon Ching**

**Areas of expertise:**  
Water and Wastewater processes,  
Nano-Materials, Biomass Energy  
Technology, Chemistry of Catalysis



**Assoc. Prof. Dr. Ong Boon Hoong**

**Areas of expertise:**  
Composite Materials, Colloid Chemistry,  
Nano-Materials (Magnetic and  
Semiconductor Nanostructure)



**Assoc. Prof. Ir. Dr. Lai Chin Wei**

**Areas of expertise:**  
Composite Materials, Energy Storage,  
Semiconductor Materials, Nano Materials,  
Solar Energy Technology, Waste  
Management, Catalysts



**Assoc. Prof. Dr. Nader Ghaffari Khaligh**

**Areas of expertise:**  
Synthesis (Green Chemistry), Organic  
Chemical Synthesis



**Assoc. Prof. Dr. Suresh Sagadevan**

**Areas of expertise:**  
Material Characterization, Nanomaterials,  
Nanomaterials Synthesis, Nanoparticle  
Synthesis



**Assoc. Prof. Dr. Lee Hwei Voon**

**Areas of expertise:**  
Nano-Materials, Biomass Conversion  
Technology, Oleochemical Technology,  
Energy & Fuels, Catalysis



**Assoc. Prof. Dr. Nurhidayatullaili Muhd Julkapli**

**Areas of expertise:**  
Bio-Polymers (Synthesis; Composites;  
Functionalization; Characterization),  
Composite Materials (Metal Oxide  
Synthesis; Photocatalysis)



**Dr. Chee Chin Fei**

**Areas of expertise:**  
Organic Chemical Synthesis (Synthesis;  
Organic Chemistry; Medicinal; Natural  
Products)



**Dr. Nor Aliya Hamizi**

**Areas of expertise:**  
Nano-Materials, Biomass Conversion  
Technology, Oleochemical Technology,  
Energy & Fuels, Catalysis



**Dr. Yasmin Abdul Wahab**

**Areas of expertise:**  
IC Testing and Failure Analysis, Device  
Fabrication and Process Simulation



**Dr. Marlinda Ab Rahman**

**Areas of expertise:**  
Nanomaterials, Graphene-Based  
Composites, Electrochemical Materials  
(Sensors, Biosensors), Polymer Composites,  
(Natural Rubber)



**Dr. Zaira Zaman Chowdhury**

**Areas of expertise:**  
Chemical and Physical Methods,  
Nano-Materials, Main Group Chemistry

# RESEARCHERS



**Dr. Billie Hiew Yan Zhang**  
**(Post-Doctoral Research Fellow)**

**Areas of expertise:**

Chemical Engineering, Environmental Pollution Control, Nanotechnology and Nanomaterials, Biomass Processing, Process Optimization



**Dr. Nurul Aida Binti Mohamed**  
**(Post-Doctoral Research Fellow)**

**Areas of expertise:**

Renewable Energy, Energy Technology, Chemistry



**Dr. M. A. Motalib Hossain**  
**(Post-Doctoral Research Fellow)**

**Areas of expertise:**

Biochemistry



**Dr. Yusliza Yusof**  
**(Post-Doctoral Research Fellow)**

**Areas of expertise:**

Nanomaterials, Carbon Nanotubes, Polymer Composites

# ADMINISTRATIVE STAFF



**Nur'Adilah Md Jelani**  
Assistant Registrar (N41)



**Afzalina Che Kob @Yaacob**  
Project Officer (N41)



**Muhammad Al Amin Che Maghtar**  
Research Assistant



**Nursiyadah Abd Hamid**  
Assistant Engineer (JA29)



**Muhamad Aniq Ismail**  
Research Assistant

# TECHNICAL STAFF



**Dr. Lee Kian Mun**  
Research Officer (Q52)



**Durga Devi Suppiah**  
Research Officer (Q48)



**Fatimah Zahara Abdullah**  
Research Officer (Q41)



**Noor Fariza Mohd Fawzi**  
Research Officer (Q41)



**Nuramera Pa'dek**  
Science Officer (C41)



**Farhana Abd Wahid**  
Assistant Science Officer (C29)



**Mohamad Safuan Kamaruddin**  
Assistant Science Officer (C29)



**Radziah Saarani**  
Research Assistant



**Norlia Abd Rani**  
Research Assistant

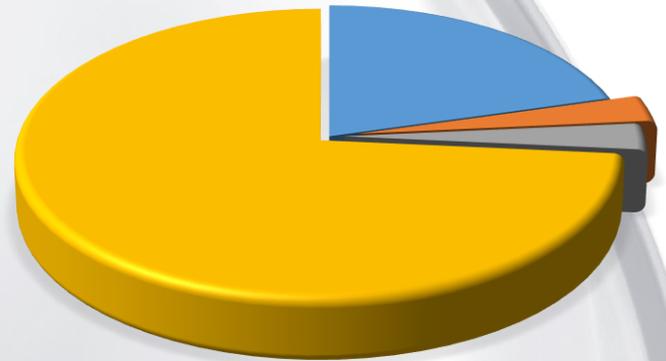


**Nur Azrin Daud**  
Research Assistant

# RESEARCH FUNDINGS

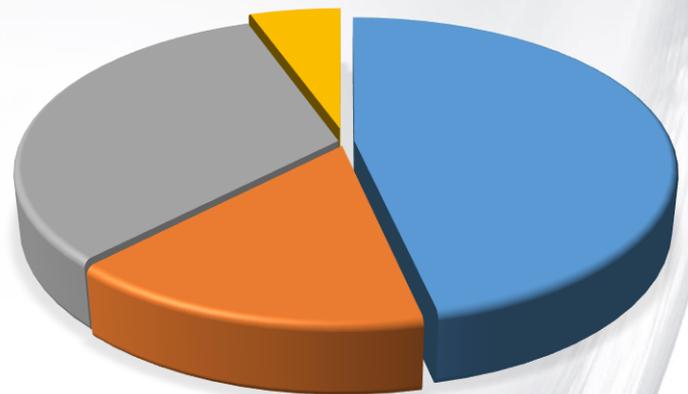
As a national research center focused on nanotechnology and catalysis research areas, NANOCAT has come out with a strategic planning in research grant application. With that in mind, the emphasis has been given to four niche areas of NANOCAT which are environmental, smart materials, chemical synthesis and energy that aligned with the Sustainable Development Goals (SDGs). This has been clearly translated to the active research grant 2021 secured by NANOCAT academic staff, which out of RM 4,490,437.31 total amount of research funding received, 73 % was contributed by the smart materials, 21% by environmental studies, 3% by chemical synthesis, and 6% by energy-related studies. The focused of research grant sources selection for NANOCAT Research Center is based on the UM Research Grant, Industrial grant, National Grant, and International Grant with the amount percentage of 47 %, 32 %, 16 % and 5 %, respectively. With this amount of funding received, NANOCAT research thrust could progressively developing and serving catalysis and nanotechnology research not only in Malaysia basis but also over the international region.

## Niche Areas 2021



■ Smart material 73% ■ Chemical 3%  
■ Environmental 21% ■ Energy 3%

## Active Research Grant 2021

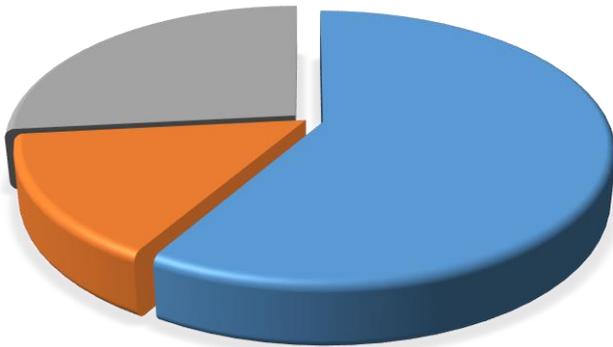


■ Industrial Grant, RM 1,457,005.31 (32%)  
■ University Grant, RM 2,099,769.00 (47%)  
■ International Grant, RM 245,896.85 (5%)  
■ National Grant RM 706,600.00 (16%)

**Total Active Research Grant 2020**  
**RM 4,490,437.31**

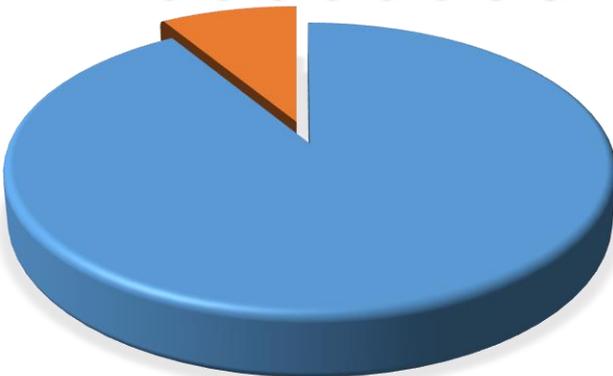
# RESEARCH GRANTS

## National Grants



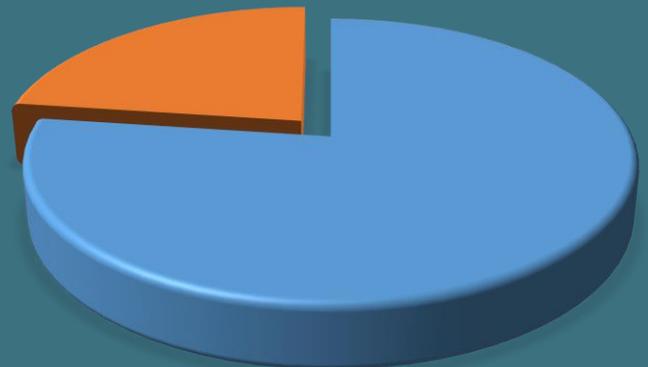
■ FRGS 58% ■ PRGS 15% ■ ScienceFund 27%

## International Grants



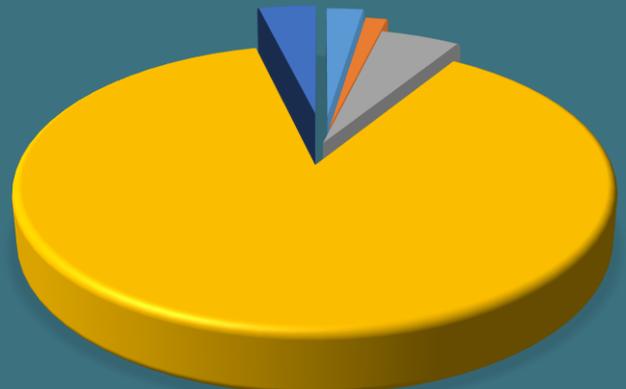
■ King Khalid University, Saudi Arabia 9% ■ AUN/SEED-Net 91%

## UM Grants



■ RU (Cluster) 77% ■ IIRG 23%

## Industry Grants

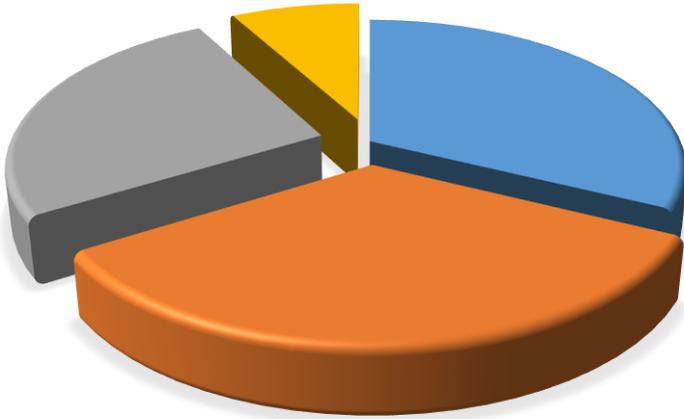


■ Karex Industries Sdn Bhd 87%  
 ■ KW PNC(JIM) 5%  
 ■ MyBiomass Sdn Bhd 4%  
 ■ Synergy Lite Sdn Bhd 3%  
 ■ Titanium World Technology Sdn Bhd 1%



# PUBLICATIONS ANALYSIS

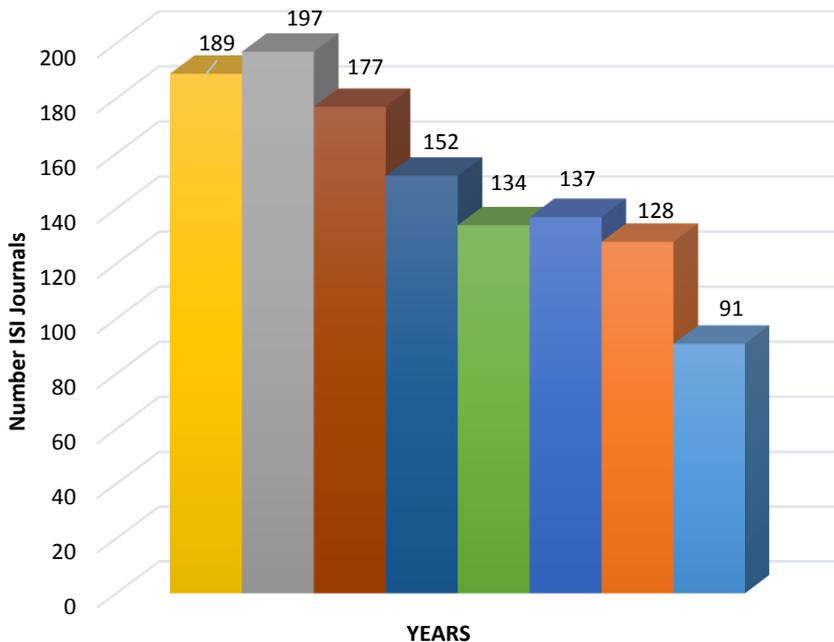
## Journal Impact Factor Quartile—Thomson Reuters (as of 30 Dec 2021)



■ Q1 – 61,32%      ■ Q3 – 49,26%  
■ Q2 – 64,34%      ■ Q4 – 15,8%

**Total ISI Publications : 189**  
**Total Number of Q1 and Q2 : 66%**

## ISI PAPERS NANOCAT (UM) INDEXED IN WOS (2014 – 2021)



■ 2021 (12 m)    ■ 2020 (12 m)    ■ 2019 (12 m)    ■ 2018 (12 m)  
■ 2017 (12 m)    ■ 2016 (12 m)    ■ 2015 (12 m)    ■ 2014 (12 m)

The number of ISI paper generated from 2021 was slightly reducing -4% From 2020 and the quality of ISI paper (Q1&Q2) was increasing +1% as compared to 2020



# RESEARCH FACILITY

## Spectroscopy Hall

The Spectroscopic Hall, a laboratory within NANOCAT, focuses on determination of physical and chemical structural properties, chemical properties, morphological and texture properties, for liquid, semisolid and solid samples.

- Scanning Electron Microscope (SEM)
- Raman Spectroscopy (RAMAN)
- Elemental Analyser (CHNOS)
- Fourier Transform Infra red (Ex situ-FTIR)
- Fourier Transform Infra red (In situFTIR)
- Differential Scanning Calorimetry (DSC)
- Differential Scanning Calorimetry (In situ-DSC)
- Zeta Potential (ZP)
- Particle Size Distribution (PSD)
- Thermogravimetry Analysis (TGA)
- Thermogravimetry Mass Spectroscopy (TG-MS)
- UV-Vis Spectroscopy (UV-VIS)
- Vibration Sample Magnometer (VSM)
- Hall Effect - Ball milling

## X-Ray Hall

X-Ray Hall provide a non-destructive technique to determine phase composition of solid materials.

- X-Ray Diffraction (Ex situ-XRD)
- X-Ray Diffraction (In situ-XRD)

## Reactor & Combinatorial Technology Hall

Reactor Hall focuses on catalytic performance screening and testing especially for petrochemical & bio oil industries. Equipped with GC to quantitatively analyze the reaction products to study the reaction mechanism allowing a reaction selectivity and yield to be optimized.

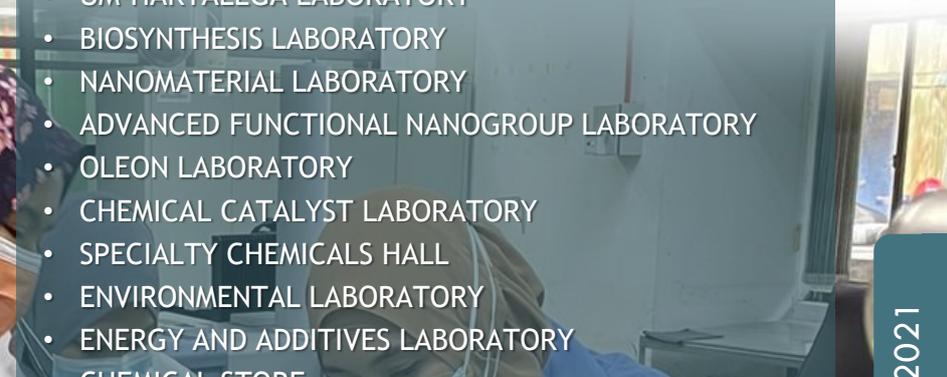
- Karl Fischer Coulometer (KF)
- Freeze Dryer
- Autoclave 200 ml HS/SS
- Density Meter
- Selective Oxidation Fixed-bed Reactor (SELOX)
- Precipitation Reactor (Lab Max)
- Trickle Flow Reactor (TFR)
- High Performance Liquid Chromatography (HPLC)
- Gas Chromatography (TCD-FID)
- Gas Chromatography (GC-MS)
- Temperature Programmed Desorption, Reduction, and Oxidation (TPDRO)
- Surface Area Analyser (BET Single Port)
- Tensiometer (Surface Tension)
- Fixed-bed Microreactor (atmospheric pressure).
- Gel Permeation Chromatography (GPC)
- Ion Chromatography (IC)



# LABORATORY



## PUSAT PENYELIDIKAN NANOTEKNOLOGI DAN PEMANGKINAN



- SPECTROSCOPY HALL
- X-RAY HALL
- REACTOR HALL
- COMBINATORIAL TECHNOLOGY HALL
- UM-HARTALEGA LABORATORY
- BIOSYNTHESIS LABORATORY
- NANOMATERIAL LABORATORY
- ADVANCED FUNCTIONAL NANOGROUP LABORATORY
- OLEON LABORATORY
- CHEMICAL CATALYST LABORATORY
- SPECIALTY CHEMICALS HALL
- ENVIRONMENTAL LABORATORY
- ENERGY AND ADDITIVES LABORATORY
- CHEMICAL STORE
- QUANTUM NANOTECHNOLOGY LABORATORY
- NANO MATERIALS ENGINEERING LABORATORY
- BIOMEDICAL SCIENCE LABORATORY
- KAREX LABORATORY
- ENERGY ANF BATTERY LABORATORY
- NANO TRANSITION METAL OXIDE PRODUCTION PLANT

# NANOCAT PRODUCTS

<https://nanocat.um.edu.my>

Nanotechnology and Catalysis Research Center (NANOCAT), since 2012 instrumental in spearheading Research, Development & Commercialization of catalysis and nanotechnology towards sustainability and green technology for all interested parties.

Looking forward to Profitable Partnership  
**Prof. Dr. Mahd Rafie Johan (Director)**  
 Phone: + 603-7967 6959; Email: mrafiej@um.edu.my

**Dr. Leo Bey Fen (Product Specialist)**  
 Phone: + 603-7967 7515; Email: beyfenleo@um.edu.my

## HIGH PRECISION PRODUCTION WITH ADVANCED QUALITY CONTROL INSTRUMENTS



© Mahd Rafie Johan, Jahangir Kamaludin, Noor Fariza Akmal Fawzi, Bey Fen, Durga Devi Suppiah, Afzalina Che Kob & Norfa Abd. Rani, 2021

Email us at [ts\\_nanocat@um.edu.my](mailto:ts_nanocat@um.edu.my) or contact us at +603-7967 6273 for a quotation.  
 Other enquiries > PIC: Durga Devi Suppiah (durgadevi@um.edu.my or +60 12-332 2750)

### NanoCAT™ IronAgro

> IONP for Plant Iron Supplement. Absorbable by plant (foliar or root) with less loss and enhanced Fe ion bioavailability.



### NanoCAT™ IronCoat

> IONP for Paint Iron Pigment with micaeous iron oxide use as a protective coating on steel structures and Polymer Coating with Metal and Magnetic properties.



### NanoCAT™ IronMedic

> IONP for Contrast Agents in magnetic resonance imaging (MRI) and magnetic particle imaging (MPI).



+603-7967 6273 | [ts\\_nanocat@um.edu.my](mailto:ts_nanocat@um.edu.my) | [Nanotechnology and Catalysis Reserach Centre](https://www.facebook.com/nanocat.um) | [nanocat.um](https://www.instagram.com/nanocat.um)

# NANOCAT PRODUCTS

Email us at [ts\\_nanocat@um.edu.my](mailto:ts_nanocat@um.edu.my) or contact us at +603-7967 6273 for a quotation.  
 Other enquiries > PIC: Dr. MARLINDA AB RAHMAN (marlinda@um.edu.my or +603-7967 6943)

## PRODUCT NAME LIST:

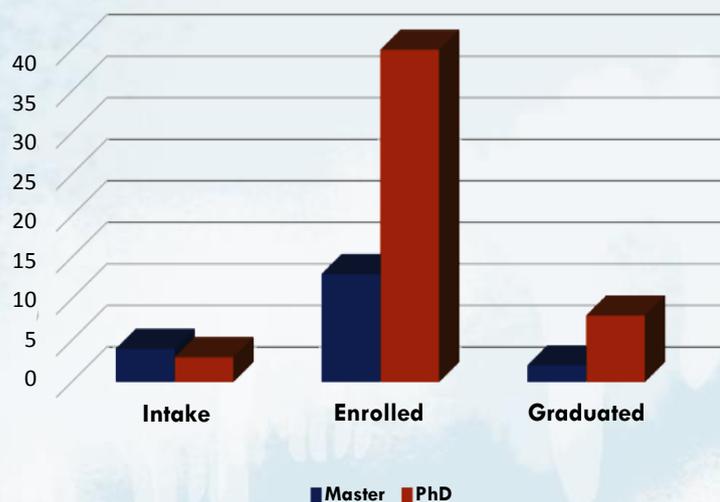
1. Highly Concentrated Graphene Oxide
2. Highly Dispersed Graphene Oxide Solution
3. Gel-like Graphene Oxide
4. Crude Graphene Oxide
5. Highly Stabilized Graphene Oxide
6. Graphene Powder
7. Graphene Oxide Flakes
8. Spongy-like Graphene Oxide
9. Flower-like ZnO/Graphene Nanocomposites
10. Rod-like ZnO/graphene nanocomposites



# NANOCAT POSTGRADUATE STUDENTS

NANOCAT is highly active in postgraduate supervision and research. These students, both from local and international, serve as important backbone to support the exponential growth of our center's research activities and outputs. With 14 academic staff, NANOCAT takes pride to attract and supervise 70 postgraduate students (51 PhD and 19 MPhil) where 16 of them successfully graduated in 2021 (11 PhD and 5 MPhil). As a global choice of research center of excellent, more than 20% of them are international postgraduate students. This is indeed an achievement as part of the effort to promote UM as global top university that making an impact.

2021



## List of Industrial Training Program 2021

SL. No.	Name of The Institution	No of Students Joined
1	AIMST University, Malaysia	1
2	UITM, Malaysia	3
3	Polyteknik Nilai, Malaysia	1
4	University Technology Petronus, Malaysia	2
5	University of Malaya, Malaysia	0
6	University Sarawak Malaysia	2
7	Tunku Abdul Rahman University College.	3

## 11 PhD Completions

No	Name
1	Waqar Ahmed (with Distinction)
2	Adeola Akeem Akinpelu
3	Elisa Rasouli
4	Lavanya Malini a/p Vythalingam
5	Mohamad Nurul Azman bin Mohammad Taib
6	Mohd Hafiz bin Ahmad
7	Shalini a/p Muniandy
8	Thiruchelvi a/p Pulingam
9	Syed Muhammad Kamal Uddin
10	Md Shalaudin
11	Chong Soon Weng

## 5 MPhil Completions

No	Name
1	Liew Siaw Ying
2	Sudtha a/p Murthy
3	Lia Zaharani
4	Siti Hajjar binti Hassan
5	Syabilah binti Sazeli

# AWARDS & DISTINCTIONS



Most Impactful academia-industry collaboration awards 2021



Assoc. Prof. Ir. Dr. Lai Chin Wei has won the JCI Top 10 Outstanding Young Malaysian Award 2021



Professor Dr. Mohd Rafie Johan has won the Top Research Scientists Malaysia (TRSM) Award from the Academy of Sciences Malaysia (ASM) 2021



Assoc. Prof. Dr. Lee Hwei Voon has been awarded the Excellence Service Award, University of Malaya, 2021



Madam Nur 'Adilah Md Jelani has been awarded the Excellence Service Award, University of Malaya, 2021



Professor Dr. Mohd Rafie Johan, Dr Leo Bey Fen, Dr. Chee Chin Fei, Assoc Prof Dr. Nader Ghaffari Khaligh, for awarding the Impact Interdisciplinary Research Grant 2021

## Congratulations to Nanocat Researchers

listed among  
**WORLD'S TOP 2% SCIENTISTS**  
by  
**STANFORD UNIVERSITY**

### List name of Nanocat Researchers

- |   |  |
|---|--|
| 1. Prof. Dr. Mohd Rafie Bin Johan           | 5. Assoc. Prof. Dr. Suresh Sagadevan                 |
| 2. Prof. Dr. Wan Jeffrey Basirun            | 6. Assoc. Prof. Dr. Lee Hwei Voon                    |
| 3. As soc. Prof. Dr. Juan Joon Ching        | 7. As soc. Prof. Dr. Nurhidayatullaili Muhd Julkapli |
| 4. As soc. Prof. Dr. Nader Ghaffari Khaligh |  |

## Congratulations to Nanocat Researchers

listed among  
**WORLD'S TOP 2% SCIENTISTS**  
CAREER-LONG CITATION IMPACT  
BY STANFORD UNIVERSITY

### List name of Nanocat Researchers

1. A soc. Prof. Ir. Ts. Dr. Lai Chin Wei
2. As soc. Prof. Dr. Nader Ghaffari Khaligh

**WORLD'S TOP 2% SCIENTISTS**  
SINGLE-YEAR CITATION IMPACT  
BY STANFORD UNIVERSITY

### List name of Nanocat Researchers

1. A soc. Prof. Ir. Ts. Dr. Lai Chin Wei
2. As soc. Prof. Dr. Nader Ghaffari Khaligh
3. Dr. Lee Kian Mun

Stanford University has recently released a list of scientists that represents the world's top 2% scientist in various disciplines, in which 7 NANOCAT researchers were featured in the list, another 2 NANOCAT researchers were listed as world the top 2% world's career-long citation impact scientists and another 3 NANOCAT researchers were listed as world the top 2% world's single year citation impact scientists

# AWARDS & DISTINCTIONS



*Sekalung Tabriah!*  
**KEPADA SEMUA PEMENANG**  
**ANUGERAH PENTADBIR UNIVERSITI MALAYA 2021**

**PENULISAN ILMIAH**  
**Dr. Lee Kian Mun**  
 Pegawai Penyelidik Q52

Dr. Lee Kian Mun has won Penulisan Ilmiah (Kategori Sains), Anugerah Pentadbir Universiti Malaya (APUM 2021)



**DinoMEX 2021**  
 International Digital Innovative in Wellness Exhibition  
 8 December 2021

**CERTIFICATE OF ACHIEVEMENT**  
 This certificate is proudly awarded to  
**NURUL HAZIERAH KAMARUDDIN, MARLINDA AB RAHMAN**

for the outstanding result in  
**International Digital Innovation in Wellness Exhibition 2021**  
**RUBBER/GRAPHENE-BASED INNOVATIONS FOR SMART AND FLEXIBLE PRESSURE SENSOR**

**GOLD WINNER**

**PROFESSOR DATIN DR. SARIEEM ABDUL KAREEM**  
 DEAN  
 Faculty of Computer Science & Information Technology  
 UNIVERSITI MALAYA  
 Kuala Lumpur

Dr. Marlinda Ab Rahman has been awarded the Gold Winner in the International Digital Innovative in Wellness Exhibition 2021



**TECH PLANTER**  
 Certificate of Participation  
 This is to certify that  
**Dr. Nurhidayatullaili Muhd Julkapli**  
 as part of i-Clean

participated as a FINALIST in  
**TECH PLAN DEMO DAY**  
 in MALAYSIA 2021  
 on 26<sup>th</sup> June 2021.

*Help to become among dozens of teams, for their passionate ideas that is full of hope in wanting to change the world through advancing science and technology for Global Citizenship*

**Leave a Nest**  
 Mr. Abdul Hakim Saadul  
 Managing Director  
 Leave a Nest, Malaysia Sdn. Bhd.

Assoc. Prof. Dr. Nurhidayatullaili Muhd Julkapli participate as a Finalist Tech Planter Demo Day Malaysia 2021



**International Summit and Conference on Material Science Nanotechnology & Bio Manufacturing (ISCMNB) 2021**  
**Best Equipped Research Laboratory Award**  
 Presented to  
**UNIVERSITI MALAYA**  
**ERL 001**  
 For the work  
**Nanotechnology and Catalysis Research centre (NANOCAT) (virtual tour)**  
 May 25th - 28th, 2021, Selangor, Malaysia

**Prof. Kamshuk Pal**  
 Convenor ISCMNB 21

**Kosnizam Abd. Majid**  
 Penerima ISCMNB 21

Mr. Mohamad Safuan Kamaruddin has won the BEST Equipped Research Laboratory (ERL) by NANOCAT Laboratories Unit @ International Summits and Conference on Materials Science, Nanotechnology & Bio-Manufacturing 2021



**Journal of Renewable Materials**  
**Most Cited Paper 2021**

*Awarded to:*  
 NW Hassan, Sun Beom Yoon, TK Velupillai,  
 Lialong Zhai, Hyun Chul Kim, Jasthwan Kish

*The paper entitled:*  
 Review of Catalytic Smart Material: Biomass Conversion Process and Progress on Cellulose-Based Electroactive Paper

*This paper was published in:*  
 Journal of Renewable Materials, Vol.6, No.1, 2018

**Professor Antonia Pizzi**  
 Editor in Chief  
 Journal of Renewable Materials

**Tech Science Press**

Assoc. Prof. Dr. Lee Hwei Voon has been awarded the JRM most cited paper award 2021, Journal of Renewable Materials, Tech Science Press (TSP) 2021



**Best Paper Award**  
**Cluster 3: IC Design and Manufacturing**  
 is presented to  
**Thomas Kong Sien Nguan, Nurul Ezaila Alias, Afiq Hamzah, Izam Kamisian, Michael Loong Peng Tan & Usman Ullah Sheikh (Universiti Teknologi Malaysia); Yasmin Abdul Wahab (University of Malaya)**

for paper entitled  
**An Efficient March (5n) FSM-Based Memory Built-In Self Test (MBIST) Architecture**

Dr. Yasmin Abdul Wahab has won the Best Paper Award- Cluster 3: IC Design and Manufacturing, 2021 IEEE Regional Symposium on Micro and Nanoelectronics, IEEE Electron Devices Malaysia Chapter, 2021

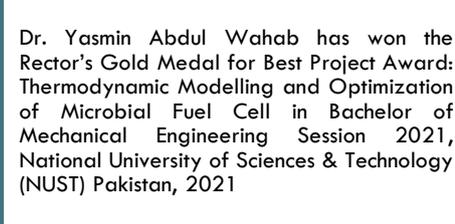


**Congratulations**  
 Fellow of the Royal Society of Chemistry (FRSC)

**Assoc. Prof. Dr. SURESH SAGADEVAN, FRSC**  
 Universiti Malaya (UM)

**The Royal Society of Chemistry**

Assoc. Prof. Dr. Suresh Sagadevan has been awarded the Fellow of the Royal Society of Chemistry (FRSC) 2021

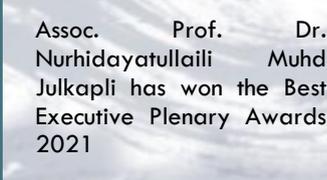


Dr. Yasmin Abdul Wahab has won the Rector's Gold Medal for Best Project Award: Thermodynamic Modelling and Optimization of Microbial Fuel Cell in Bachelor of Mechanical Engineering Session 2021, National University of Sciences & Technology (NUST) Pakistan, 2021



**NATIONAL UNIVERSITY OF SCIENCES & TECHNOLOGY**  
 SECTOR 7, ISLAMABAD, PAKISTAN

**GOLD MEDAL CERTIFICATE**  
 This is to certify that  
 Mr. Mr. **MUHAMMAD NIZAM NAKIR**  
 Son/Daughter of **SAMEER AHMED**  
 Registration No. **00002-096**  
 Who was a student at **PAKISTAN NAVY ENGINEERING COLLEGE**  
 Has been awarded  
**RECTOR'S GOLD MEDAL**  
 FOR  
**BEST PROJECT IN**  
**BACHELOR OF MECHANICAL ENGINEERING**  
 in the session **2021**



Assoc. Prof. Dr. Nurhidayatullaili Muhd Julkapli has won the Best Executive Plenary Awards 2021



**International Summit and Conference on Material Science Nanotechnology & Bio Manufacturing (ISCMNB) 2021**  
**Best Executive Plenary Award**  
 Presented to  
**NURHIDAYATULLAILI MUHD JULKAPLI**  
 Universiti Malaya

For the work  
**Fabrication of Hybrid Carbonate Capped Gold Nanoparticles Reduced Graphene Oxide as Potential Anti-Oxidant and Colon Cancer Cytotoxic Agent**  
 May 25th - 28th, 2021, Selangor, Malaysia

**Prof. Kamshuk Pal**  
 Convenor ISCMNB 21

**Kosnizam Abd. Majid**  
 Penerima ISCMNB 21

# SEMINAR/WEBINAR

- Title: “Anthraquinones from Medicinal Plants: The Chemistry and Pharmacology” Speaker: Dr. Che Puteh Osman (UiTM)-3 March 2021
- Title: “Application of Box–Behnken design for ultrasound-assisted extraction and recycling preparative HPLC for isolation of anthraquinones from *Cassia singueana*” Speaker: Dr. Norazah Basar (UTM)-3 March 2021
- Title: “Establishing GPCR Targets of hMAO Active Anthraquinones from *Cassia obtusifolia* Linn Seeds Using In Silico and In Vitro Methods” Speaker: Dr. Fazlin Mohd Fauzi (UiTM)-3 March 2021
- Title: “Morindone from *Morinda citrifolia* as a potential antiproliferative agent against colorectal cancer” Speaker: Chee Cheok Wui (UM)-3 March 2021
- Title: “From Metal Complexes to Metal Nanoparticles: How Do We Benefit from Their Photophysical, Electrochemical and Catalytic Properties?” Speaker: Assoc. Prof. Solen KINAYYIGIT (Gebze Technical University, Turkey)-4 March 2021
- Title: “Conventional and Novel Approaches of Water Treatments, Adsorption and Membrane Separation; Advantages and Disadvantages” Speaker: Dr. Zaira Zaman Chowdhury (UM)-4 March 2021
- Title: “Micro- and Nanoscale Platforms for Tissue Engineering” Speaker: Assoc. Prof. Israfil KUCUK (Gebze Technical University, Turkey)-4 March 2021
- Title: “Hydrodeoxygenation of biomass compound into fuel grade hydrocarbons: Synergetic effect of Ni-Cu and Ti-MCM-41 catalyst” Speaker: Dr. Lee Hwei Voon (UM)-4 March 2021
- Title: “Nanomaterials for Membrane-based Separation Applications” Speaker: Assist. Prof. Sadiye VELIOGLU (GTU)-4 March 2021
- Title: “Magnetic nano-photocatalyst for the remediation of persistence organic pollutants” Speaker: Dr. Nurhidayatullaili Binti Muhd Julkapli (UM)-4 March 2021
- Title: “Synthesis of 2D Materials and their Applications” Speaker: Assist. Prof. Osman EKSİK (GTU)-4 March 2021
- Title: “Advancement of Mesoporous Photocatalyst for Wastewater Treatment” Speaker: Assoc. Prof. Dr. Juan Joon Ching (UM)-4 March 2021
- Title: “II-VI Quantum Dots Prospect in LED Applications” Speaker: Dr. Nor Aliya Hamizi (NANOCAT, UM)-4 March 2021

- Title: “Introduction of Institute of Nanotechnology, GTU” Speaker: Prof. Dr. Ahmet Yavuz ORAL (GTU)-4 March 2021
- Title: “Regioselective synthesis of ortho-hydroxyanthraquinones and their potential application as electroactive species for redox flow batteries” Speaker: Dr. Chee Chin Fei (NANOCAT, UM)-4 March 2021
- Title: “Advancement of molecular based techniques in the authentication of food products” Speaker: Dr. M. A. Motalib Hossain (UM)-18 March 2021
- Title: “Opportunities and Challenges of Functional Nanomaterials” Speaker: Assoc. Prof. Dr. Ong Boon Hoong (UM)-28 April 2021
- Title: “Editor’s Tips for Successful Submissions to Reputed Journals” Speaker: Dr. Xin Su (Executive Editor, Angewandte Chemie)-5 May 2021
- Title: “Nanocellulose Composites As Smart Materials in Various Industrial Application” Speaker: Dr. Nurhidayatullaili Binti Muhd Julkapli (UM)-29 June 2021
- Title: “The wonders of small molecules: from medicinal chemistry to nanomedicine” Speaker: Dr. Chee Chin Fei (UM)-8 July 2021
- Title: “Design and Development of Conventional Polymerase Chain Reaction (PCR) Technique” Speaker: Dr. M. A. Motalib Hossain (UM)-9 July 2021
- Title: “Good Administrative Support for Research” Speaker: Assoc. Prof. Dr. Ong Boon Hoong (UM)-12 July 2021
- Title: “What is nanomedicine” Speaker: Dr. Chee Chin Fei (UM)-14 July 2021
- Title: “The Application of Mesoporous Material” Speaker: Assoc. Prof. Dr. Juan Joon Ching (UM)-18 August 2021
- Title: “Published in NATURE Journal: Strategy Plan” Speaker: Assoc. Prof. Dr. Mohd Asri Mat Teridi (UKM)-26 August 2021
- Title: “Graphene-based modified electrochemical sensors” Speaker: Dr. Marlinda Ab Rahman (UM)-20 September 2021
- Title: “Molecular Baskets: From Design to Applications” Speaker: Dr. Irene Ling (Monash University)-30 November 2021
- Title: “Waste Water Treatment: Adsorption Technology” Speaker: Dr. Zaira Zaman Chowdhury-22 December 2021



# COLLABORATORS



Intensification in networking and research collaboration were formalized through 15 MOUs (2 national and 13 international), 10 MOAs (6 national and 4 international). The co-operation has given mileage for joint publications in WoS journals with high impact.



# COLLABORATORS

## MOU

### *International*

- University of the Western Cape
- Iraqi Forum for Intellectuals and Academics
- Peace University
- Wajufo Investment Holdings Co. Ltd
- University of Sydney
- ProNEXO Engineering Consultancy
- Cihan University Sulaimaniya
- GLA University
- Corporation of Research and Industrial Development
- Tikrit University
- Institute for Color Science and Technology
- Kharazmi University
- Sari Agricultural Sciences & Natural Resources University

### *National*

- Universiti Teknologi Petronas
- Universiti Teknologi Mara



## MOA

### *International*

- University of Dhaka
- University of Mohamed Boudiaf M'Sila
- Thai Kiwa Chemical Co. Ltd
- University of Nizwa

### *National*

- Sunway University
- International Islamic University Malaysia
- Universiti Sains Malaysia
- Karex Industries Sdn Bhd
- Global Envdk Sdn. Bhd.
- Nanomalaysia

# PUBLICATIONS 2021

No	Article Title	Author	Quartile
1	Landfill leachate wastewater treatment to facilitate resource recovery by a coagulation-flocculation process via hydrogen bond	Cheng, SY; Show, PL; <b>Juan, JC</b> ; Chang, JS; Lau, BF; Lai, SH; Ng, EP; Yian, HC; Ling, TC	Q1
2	A review on catalytic hydrodeoxygenation of lignin to transportation fuels by using nickel-based catalysts	Ambursa, MM; <b>Juan, JC</b> ; Yahaya, Y; Taufiq-Yap, YH; Lin, YC; <b>Lee, HV</b>	Q1
3	Enhanced electrochemical and photocatalytic activity of g-C <sub>3</sub> N <sub>4</sub> -PANI-PPy nanohybrids	Munusamy, S; Sivaranjan, K; Sabhapathy, P; Narayanan, V; Mohammad, F; <b>Sagadevan, S</b>	Q1
4	Analogues of 2'-hydroxychalcone with modified C4-substituents as the inhibitors against human acetylcholinesterase	Sukumaran, SD; Nasir, SB; Tee, JT; Buckle, MJC; Othman, R; Adb Rahman, N; Lee, VS; Bukhari, SNA; <b>Chee, CF</b>	Q1
5	An efficient platform based on strontium titanate nanocubes interleaved polypyrrole nanohybrid as counter electrode for dye-sensitized solar cell	Ahmed, U; Shahid, MM; Shahabuddin, S; Abd Rahim, N; Alizadeh, M; Pandey, AK; <b>Sagadevan, S</b>	Q1
6	Recent advances in tissue engineering scaffolds based on polyurethane and modified polyurethane	Naureen, B; Haseeb, ASMA; <b>Basirun, WJ</b> ; Muhamad, F	Q1
7	Effect of reaction conditions on the lifetime of SAPO-34 catalysts in methanol to olefins process – A review	Ahmad, MS; Cheng, CK; Bhuyar, P; Atabani, AE; Pugazhendhi, A; Chi, NTL; Witoon, T; Lim, JW; <b>Juan, JC</b>	Q1
8	Triorganotin complexes in cancer chemotherapy: Mechanistic insights and future perspectives	Anasamy, T; <b>Chee, CF</b> ; Wong, YEF; Heh, CH; Kiew, LV; Lee, HB; Chung, LY	Q1
9	Enhancement of photocatalytic degradation of Malachite Green using iron doped titanium dioxide loaded on oil palm empty fruit bunch-derived activated carbon	Loo, WW; Pang, YL; Lim, S; Wong, KH; <b>Lai, CW</b> ; Abdullah, AZ	Q1
10	Environmentally adapted bio-oil compounds-derived polyolesters synthesis: Optimization and properties of base fluids	Cheryl-Low, YL; Kong, PS; <b>Lee, HV</b>	Q1
11	Ultrasonic assisted new Al <sub>2</sub> O <sub>3</sub> @TiO <sub>2</sub> -ZnO/DW ternary composites nanofluids for enhanced energy transportation in a closed horizontal circular flow passage	Ahmed, W; Kazi, SN; <b>Chowdhury, ZZ</b> ; <b>Bin Johan, MR</b> ; Soudagar, MEM; Mujtaba, MA; Gul, M; Badruddin, IA; Kamangar, S	Q1
12	Recent advances in biodiesel production from agricultural products and microalgae using ionic liquids: Opportunities and challenges	Ong, HC; Tiong, YW; Goh, BHH; Gan, YY; Mofijur, M; Fattah, IMR; Chong, CT; Alam, MA; <b>Lee, HV</b> ; Silitonga, AS; Mahlia, TMI	Q1
13	Preparation and characterization of the encapsulated myrtle extract nanoliposome and nanoniosome without using cholesterol and toxic organic solvents: A comparative study	Gorjian, H; Amiri, ZR; Milani, JM; <b>Khaligh, NG</b>	Q1
14	Rational design of built-in stannic oxide-copper manganate microrods p-n heterojunction for photoelectrochemical sensing of tetracycline	Velmurugan, S; Liu, ZX; Yang, TCK; <b>Juan, JC</b>	Q1
15	Influence of iron doping towards the physicochemical and biological characteristics of hydroxyapatite	Balakrishnan, S; Padmanabhan, VP; Kulandaivelu, R; Nellaiappan, TSSN; <b>Sagadevan, S</b> ; Paiman, S; Mohammad, F; Al-Lohedan, HA; Obulapuram, PK; Oh, WC	Q1

# PUBLICATIONS 2021

No	Article Title	Author	Quartile
16	Structural, electronic and optoelectronic properties of AB <sub>5</sub> C <sub>8</sub> (A = Cu/Ag; B = In and C = S, Se and Te) compounds	Begum, Y; Khan, S; Reshak, AH; Laref, A; Amir, Z; Murtaza, G; Bila, J; <b>Johan, MR</b> ; Al-Noor, TH	Q1
17	Recent advances in natural polymer-based hydroxyapatite scaffolds: Properties and applications	Lett, JA; <b>Sagadevan, S</b> ; Fatimah, I; Hoque, ME; Lokanathan, Y; Leonard, E; Alshahateet, SF; Schirhagl, R; Oh, WC	Q1
18	Silver-calcia stabilized zirconia nanocomposite coated medical grade stainless steel as potential bioimplants	Kaliaraj, GS; Thukkaram, S; Alagarsamy, K; Kirubaharan, AMK; Paul, LK; Abraham, L; Vishwakarma, V; <b>Sagadevan, S</b>	Q1
19	Adsorption studies of volatile organic compound (Naphthalene) from aqueous effluents: Chemical activation process using weak lewis acid, equilibrium kinetics and isotherm modelling	Akinpelu, AA; <b>Chowdhury, ZZ</b> ; Shibly, SM; Faisal, AM; Badruddin, IA; Rahman, MM; Al Amin, M; <b>Sagadevan, S</b> ; Akbarzadeh, O; Khan, TMY; Kamangar, S; Khalid, K; Saidur, R; <b>Johan, MR</b>	Q1
20	Visible light sensitized porous clay heterostructure photocatalyst of zinc-silica modified montmorillonite by using tris(2,2'-bipyridyl) dichlororuthenium	Fatimah, I; Ardianti, S; Sahroni, I; Purwiandono, G; <b>Sagadevan, S</b> ; Doong, RA	Q1
21	Surface tension under magnetic field effect for nanoscaled water	<b>Al-Douri, Y</b> ; Hassan, SM; Batoo, KM; Raslan, EH	Q1
22	TEMPO-oxidized nanocellulose films derived from coconut residues: Physicochemical, mechanical and electrical properties	Hassan, SH; Velayutham, TS; Chen, YW; <b>Lee, HV</b>	Q1
23	A review of the recent progress on heterogeneous catalysts for Knoevenagel condensation	Appaturi, JN; Ratti, R; Phoon, BL; Batagarawa, SM; Din, IU; Selvaraj, M; Ramalingam, RJ	Q1
24	Energy, exergy and economic analysis of liquid flat-plate solar collector using green covalent functionalized graphene nanoplatelets	Kumar, LH; Kazi, SN; Masjuki, HH; Zubir, MNM; <b>Jahan, A</b> ; Bhinitha, C	Q1
25	Preparation of novel nanostructured WO <sub>3</sub> /CuMnO <sub>2</sub> p-n heterojunction nanocomposite for photoelectrochemical detection of nitrofurazone	Velmurugan, S; Yang, TCK; <b>Juan, JC</b> ; Chen, JN	Q1
26	Heat transfer growth of sonochemically synthesized novel mixed metal oxide ZnO+Al <sub>2</sub> O <sub>3</sub> +TiO <sub>2</sub> /DW based ternary hybrid nanofluids in a square flow conduit	Ahmed, W; Kazi, SN; <b>Chowdhury, ZZ</b> ; <b>Bin Johan, MR</b> ; Mehmood, S; Soudagar, MEM; Mujtaba, MA; Gul, M; Ahmad, MS	Q1
27	Review - Recent Advancements of ZnO/rGO Nanocomposites (NCs) for Electrochemical Gas Sensor Applications	Rumjit, NP; Thomas, P; <b>Lai, CW</b> ; Wong, YH	Q1
28	Mesoporous carbon: A versatile material for scientific applications	<b>Rahman, MM</b> ; Ara, MG; Alim, MA; Uddin, MS; Najda, A; Albadrani, GM; Sayed, AA; Mousa, SA; Abdel-Daim, MM	Q1
29	Detection and discrimination of seven highly consumed meat species simultaneously in food products using heptaplex PCR-RFLP assay	Uddin, SMK; Hossain, MAM; <b>Chowdhury, ZZ</b> ; <b>Johan, MR</b>	Q1

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No	Article Title	Author	Quartile
30	Mechanistic actions and contributing factors affecting the antibacterial property and cytotoxicity of graphene oxide	Pulingam, T; Thong, KL; Appaturi, JN; <b>Lai, CW; Leo, BF</b>	Q1
31	Experimental evaluation and numerical verification of enhanced heat transportation by using ultrasonic assisted nanofluids in a closed horizontal circular passage	Ahmed, W; <b>Chowdhury, ZZ</b> ; Kazi, SN; <b>Bin Johan, MR</b> ; Abdelrazek, AH; Fayaz, H; Badruddin, IA; Mujtaba, MA; Soudagar, MEM; Akram, N; Mehmood, S; Ahmad, MS; Kamangar, S; Khan, TMY	Q1
32	Multiple effect of thermal treatment approach on PVDF membranes: Permeability enhancement and silver nanoparticles immobilization	Kamarudin, D; Hashim, NA; <b>Ong, BH</b> ; Kakihana, Y; Higa, M; Matsuyama, H	Q1
33	Improved room temperature dielectric properties of Gd <sup>3+</sup> and Nb <sup>5+</sup> co-doped Barium Titanate ceramics	Batoo, KM; Verma, R; Chauhan, A; Kumar, R; Hadi, M; Aldossary, OM; <b>Al-Douri, Y</b>	Q1
34	Recent advancements in polythiophene-based materials and their biomedical, geno sensor and DNA detection	<b>Mousavi, SM</b> ; Hashemi, SA; Bahrani, S; Yousefi, K; Behbudi, G; Babapoor, A; Omidifar, N; <b>Lai, CW</b> ; Gholami, A; Chiang, WH	Q1
35	Zn-based metal-organic frameworks as sacrificial agents for the synthesis of Zn/ZSM-5 catalysts and their applications in the aromatization of methanol	Tzeng, YZ; Chang, CJ; Yang, MC; Tsai, MJ; Teramura, K; Tanaka, T; Lee, HV; <b>Juan, JC</b> ; Wu, JY; Lin, YC	Q1
36	Usage of a new macro-hierarchical graphene sponge in batch adsorption and packed column configuration for efficient decontamination of cadmium in aqueous environment	Lai, KC; <b>Hiew, BYZ</b> ; Tee, WT; Thangalazhy-Gopakumar, S; Gan, S; Lee, LY	Q1
37	Synthesis, characterization, and a study of the influence of [HSO <sub>4</sub> ] <sup>-</sup> and [SO <sub>4</sub> ] <sup>2-</sup> on thermal phase transition and thermal stability of two new organic acid salts containing dication cyclic amine	Zaharani, I; Shahnavaaz, Z; <b>Rafie Johan, M</b> ; <b>Ghaffari Khaligh, N</b>	Q1
38	Review - Recent Progress in the Diversity of Inkjet-Printed Flexible Sensor Structures in Biomedical Engineering Applications	Hussin, H; Soin, N; Hatta, SFWM; Rezali, FAM; <b>Wahab, YA</b>	Q1
39	Nanoscale domain imaging and the electromechanical response of zinc oxide nanorod arrays synthesized on different substrates	Abubakar, S; Ying Chyi, JL; Tan, ST; <b>Sagadevan, S</b> ; Talib, ZA; Paiman, S	Q1
40	Nanoemulsions: A review on the conceptualization of treatment for psoriasis using a 'green' surfactant with low-energy emulsification method	Dinshaw, IJ; Ahmad, N; Salim, N; <b>Leo, BF</b>	Q1
41	Functionalized graphene-based nanocomposites for smart optoelectronic applications	<b>Sagadevan, S</b> ; Shahid, MM; Zhan, YQ; Oh, WC; Soga, T; Lett, JA; Alshahateet, SF; Fatimah, I; Waqar, A; Paiman, S; <b>Johan, MR</b>	Q1
42	Conversion of bio-jet fuel from palm kernel oil and its blending effect with jet A-1 fuel	Why, ESK; Ong, HC; <b>Lee, HV</b> ; Chen, WH; Asikin-Mijan, N; Varman, M	Q1
43	Applicability of a novel and highly effective adsorbent derived from industrial palm oil mill sludge for copper sequestration: Central composite design optimisation and adsorption performance evaluation	Lee, XJ; <b>Hiew, BYZ</b> ; Lai, KC; Tee, WT; Thangalazhy-Gopakumar, S; Gan, S; Lee, LY	Q1

# PUBLICATIONS 2021

No	Article Title	Author	Quartile
44	In-situ study of electrochemical migration of tin in the presence of bromide ion	Lee, EL; Haseeb, ASMA; <b>Basirun, WJ</b> ; Wong, YH; Sabri, MFM; Low, BY	Q1
45	Electrodeposition of BiVO <sub>4</sub> with needle-like flower architecture for high performance photoelectrochemical splitting of water	Mohamed, NA; Arzaee, NA; Mohamad Noh, MF; Ismail, AF; Safaei, J; Sagu, JS; <b>Johan, MR</b> ; Mat Teridi, MA	Q1
46	Facile Synthesis and Characterization of Palm CNF-ZnO Nanocomposites with Antibacterial and Reinforcing Properties	Supramaniam, J; Low, DYS; Wong, SK; Tan, LTH; <b>Leo, BF</b> ; Goh, BH; Darji, D; Rasdi, FRM; Chan, KG; Lee, LH; Tang, SY	Q1
47	Phosphotungstic acid-Titania loaded polyaniline nanocomposite as efficient methanolelectro-oxidationcatalyst in fuel cells	Lakshmi, MS; Wabaidur, SM; Alothman, ZA; <b>Johan, MR</b> ; Ponnusamy, VK; Dhanusuraman, R	Q1
48	Reaction and hydrogen production phenomena of ethanol steam reforming in a catalytic membrane reactor	Chen, WH; Li, SC; Lim, S; Chen, ZY; <b>Juan, JC</b>	Q1
49	Enhanced Conductivity Boosts the Cathodic Performance of Aluminium-Doped SrTiO <sub>3</sub> in Rechargeable Alkaline Zinc Battery	Wong, CPP; <b>Lai, CW</b> ; Lee, KM; Pan, GT; Huang, CM; Yang, TCK; <b>Juan, JC</b>	Q1
50	Nickel oxides/hydroxides-graphene as hybrid supercapattery nanocomposites for advanced charge storage materials - a review	<b>Basirun, WJ</b> ; Saeed, IM; Rahman, MS; Mazari, SA	Q1
51	Chemical bath deposition of h-MoO <sub>3</sub> on optical fibre as room-temperature ammonia gas sensor	Chua, WH; Yaacob, MH; Tan, CY; <b>Ong BH</b>	Q1
52	Recent Trends in the Foliar Spraying of Zinc Nutrient and Zinc Oxide Nanoparticles in Tomato Production	Ahmed, R; Samad, MYA; Uddin, MK; Quddus, MA; <b>Hossain, MAM</b>	Q1
53	Role of Oil Palm Empty Fruit Bunch-Derived Cellulose in Improving the Sonocatalytic Activity of Silver-Doped Titanium Dioxide	Chai, YD; Pang, YL; Lim, S; Chong, WC; <b>Lai, CW</b> ; Abdullah, AZ	Q1
54	A novel photoanode based on Thorium oxide (ThO <sub>2</sub> ) incorporated with graphitic Carbon nitride (g-C <sub>3</sub> N <sub>4</sub> ) for Photoelectrochemical water splitting	<b>Mohamed, NA</b> ; Ismail, AF; Safaei, J; <b>Johan, MR</b> ; Teridi, MAM	Q1
55	Smart stimuli-responsive nanocarriers for the cancer therapy - nanomedicine	Murugan, B; <b>Sagadevan, S</b> ; Fatimah, I; Oh, W-C; <b>Hossain, MAM</b> ; <b>Johan, MR</b>	Q1
56	Study on Selected Metal-Organic Framework-Based Catalysts for Cycloaddition Reaction of CO <sub>2</sub> with Epoxides: A Highly Economic Solution for Carbon Capture and Utilization	Musa, SG; Merican, ZMA; Akbarzadeh, O	Q1
57	Properties of Kenaf Cellulose Nanofiber (CNF) as Potential Larvicide Nanocarrier and Its Acute Ecotoxicity against Daphnia Magna and Dania rerio	Pengiran, H; Kamaldin, J; <b>Leo, BF</b> ; Yusob; SAA	Q1
58	The Effect of Particle Size of Almond Shell Powders, Temperature and Time on the Extraction of Cellulose	Mohammed, MA; <b>Basirun, WJ</b> ; Rahman, NMMA; Salleh, NM	Q1
59	Electrochemical biosensors with Aptamer recognition layer for the diagnosis of pathogenic bacteria: Barriers to commercialization and remediation	Al Mamun, M; <b>Wahab, YA</b> ; <b>Hossain, MAM</b> ; Hashem, A; <b>Johan, MR</b>	Q1
60	Molecular characterization of Vibrio cholerae O1 El Tor strains in Malaysia revealed genetically diverse variant lineages	<b>Thong, KL</b> ; Tham, KBL; Ngoi, ST; Tan, SC; Yussof, WNW, Hanapi, RA; Mohamad, N; The, CSJ	Q1

# PUBLICATIONS 2021

No	Article Title	Author	Quartile
61	Reactor design of methanol steam reforming by evolutionary computation and hydrogen production maximization by machine learning	Chen, W-H; Chen, Z-Y, Hsu, S-Y; Park, Y-K; <b>Juan, JC</b>	Q1
62	EDTA functionalised cocoa pod carbon encapsulated SPIONs via green synthesis route to ameliorate textile dyes - Kinetics, isotherms, central composite design and artificial neural network	Thomas, P; Rumjit, NP; <b>Lai, CW; Bin Johan, MR</b>	Q2
63	Nanoflower-like composites of ZnO/SiO <sub>2</sub> synthesized using bamboo leaves ash as reusable photocatalyst	Fatimah, I; Fadillah, G; Sahroni, I; Kamari, A; <b>Sagadevan, S</b> ; Doong, RA	Q2
64	Kinetic and isotherm studies on adsorptive removal of sulfates by cotton shell derived biochar: Recovery of sulfates from marcasite soil	Rumjit, NP; Samsudin, NA; Low, FW; Thomas, P; <b>Lai, CW</b> ; Chellam, PV; <b>Bin Johan, MR</b> ; Lim, YC; Amin, N; Tiong, SK	Q2
65	One-pot sonochemical synthesis route for the synthesis of ZnO@TiO <sub>2</sub> /DW hybrid/composite nanofluid for enhancement of heat transfer in a square heat exchanger	Ahmed, W; Kazi, SN; <b>Chowdhury, ZZ; Johan, MR</b>	Q2
66	Experimental investigation of convective heat transfer growth on ZnO@TiO <sub>2</sub> /DW binary composites/hybrid nanofluids in a circular heat exchanger	Ahmed, W; Kazi, SN; <b>Chowdhury, ZZ; Johan, MRB</b> ; Akram, N; Mujtaba, MA; Gul, M; Oon, CS	Q2
67	Supramolecular assembly and spectroscopic characterization of indolenine-barbituric acid zwitterions	Ramle, AQ; Tiekink, ERT; Fei, CC; <b>Julkapli, NM; Basirun, WJ</b>	Q2
68	An Efficient Simultaneous Electrochemical Detection of Nanomolar Epinephrine and Uric Acid using Low Temperature Synthesized Nano-sized Copper Telluride	Pradhan, S; Banerjee, MB; Biswas, S; <b>Hamizi, NA</b> ; Das, DK; Bhar, R; Bandyopadhyay, R; Pramanik, P	Q2
69	Progress on modified calcium oxide derived waste-shell catalysts for biodiesel production	Ooi, HK; Koh, XN; Ong, HC; <b>Lee, HV</b> ; Mastuli, MS; Taufiq-Yap, YH; Alharthi, FA; Alghamdi, AA; Mijan, NA	Q2
70	High yield super-hydrophobic carbon nanomaterials using cobalt/iron co-catalyst impregnated on powder activated carbon	Betar, BO; Alsaadi, MA; <b>Chowdhury, ZZ</b> ; Aroua, MK; Mjalli, FS; Niazi, MDM	Q2
71	First-principles predictions of the structural, electronic, optical and elastic properties of the zintl-phases AE <sub>3</sub> GaAs <sub>3</sub> (AE = Sr, Ba)	Khiredine, A; Bouhemadou, A; Alnujaim, S; Guechi, N; Bin-Omran, S; <b>Al-Douri, Y</b> ; Khenata, R; Maabed, S; Kushwaha, AK	Q2
72	Semicarbazide and thiosemicarbazide containing butylated hydroxytoluene moiety: new potential antioxidant additives for synthetic lubricating oil	Sazeli, S; Nath, AR; Ahmad, MH; Zulkifli, NWM; <b>Johan, MR</b> ; Yehye, WA; <b>Voon, LH</b>	Q2
73	Drug delivery and in vitro biological effects of gum ghatti-modified hydroxyapatite nanoporous composites	Padmanabhan, VP; Prakash, N; Sankara Narayanan, TSN; Kulandaivelu, R; Mohammad, F; Obulapuram, PK; Oh, WC; <b>Sagadevan, S</b>	Q2

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74	Optical management of CQD/AgNP@SiNW arrays with highly efficient capability of dye degradation	Hsiao, PH; Timjan, S; Kuo, KY; <b>Juan, JC</b> ; Chen, CY	Q2
75	Enhanced antibacterial and photocatalytic activities of nickel oxide nanostructures	Christy, AJ; <b>Sagadevan, S</b> ; Nehru, LC	Q2
76	Functionalization of graphene-based materials: Effective approach for enhancement of tribological performance as lubricant additives	Ismail, NA; Zulkifli, NWM; <b>Chowdhury, ZZ</b> ; <b>Johan, MR</b>	Q2
77	Tri-metallic Co-Ni-Cu based metal organic framework nanostructures for the detection of an anticancer drug nilutamide	Akhter, S; Zain, NKM; Shalauddin, M; Singh, VK; Misnon, II; Sharma, RK; Das, S; <b>Basirun, WJ</b> ; <b>Johan, MR</b> ; Jose, R	Q2
78	A high-capacity of oxygen induced SrTiO <sub>3</sub> cathode material for rechargeable Alkaline Zinc battery	Wong, CPP; <b>Lai, CW</b> ; <b>Lee, KM</b> ; Pan, GT; Chong, KB; <b>Johan, MR</b> ; <b>Juan, JC</b> ; Yang, TCK	Q2
79	Cerium(IV) oxide nanocomposites: Catalytic properties and industrial application	Bagheri, S; Khalil, I; <b>Julkapli, NM</b>	Q2
80	Visible light active TiO <sub>2</sub> /CS/Fe <sub>3</sub> O <sub>4</sub> for nitrophenol degradation: Studying impact of TiO <sub>2</sub> , CS and Fe <sub>3</sub> O <sub>4</sub> loading on the optical and photocatalytic performance of nanocomposite	Afzal, S; <b>Julkapli, NM</b> ; <b>Mun, LK</b>	Q2
81	Production of high-purity ThO <sub>2</sub> from monazite ores for thorium fuel-based reactor	Salehuddin, AHJM; Ismail, AF; Aziman, ES; <b>Mohamed, NA</b> ; Teridi, MAM; Idris, WMR	Q2
82	High mobility reactive sputtered CuxO thin film for highly efficient and stable perovskite solar cells	Islam, MA; <b>Wahab, YA</b> ; Khandaker, MU; Alsubaie, A; Almalki, ASA; Bradley, DA; Amin, N	Q2
83	Synthesis and characterization of a new acid molten salt and the study of its thermal behavior and catalytic activity in Fischer esterification	Zaharani, L; <b>Khaligh, NG</b> ; <b>Johan, MR</b> ; Gorjian, H	Q2
84	Review of the past and recent developments in functionalization of graphene derivatives for reinforcement of polypropylene nanocomposites	Said, NHM; Liu, WW; Khe, CS; <b>Lai, CW</b> ; Zulkepli, NN; Aziz, A	Q2
85	Ab initio exploration of the structural, elastic, electronic and optical properties of a new layered perovskite-type oxyfluoride: CsSrNb <sub>2</sub> O <sub>6</sub> F	Gherriche, A; Bouhemadou, A; <b>Al-Douri, Y</b> ; Bin-Omran, S; Khenata, R; Hadi, MA	Q2
86	Synergistic absorbents based on SnFe <sub>2</sub> O <sub>4</sub> @ZnO nanoparticles decorated with reduced graphene oxide for highly efficient dye adsorption at room temperature	Singh, PK; Kuo, KY; Lee, JT; Hsiao, PH; <b>Juan, JC</b> ; Duong, HP; Chen, CY	Q2
87	Application of nitrogen-rich porous organic polymer for the solid-phase synthesis of 2-amino-4H-benzo[b]pyran scaffolds using ball milling process	Zaharani, L; <b>Khaligh, NG</b> ; Mihankhah, T; <b>Johan, MR</b>	Q2
88	Electromagnetic Characterization of a Multiwalled Carbon Nanotubes-Silver Nanoparticles-Reinforced Polyvinyl Alcohol Hybrid Nanocomposite in X-Band Frequency	<b>Yusof, Y</b> ; <b>Moosavi, S</b> ; <b>Johan, MR</b> ; Badruddin, IA; <b>Wahab, YA</b> ; <b>Hamizi, NA</b> ; <b>Ab Rahman, M</b> ; Kamangar, S; Khan, TMY	Q2
89	Synthesis and degradation of 3D biodegradable polyurethane foam scaffolds based on poly(propylene fumarate) and poly[(R)-3-hydroxybutyrate]	Naureen, B; Haseeb, ASMA; <b>Basirun, WJ</b> ; Muhamad, F	Q2

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No	Article Title	Author	Quartile
90	Mapping the field of microbial fuel cell: A quantitative literature review (1970–2020)	Naseer, MN; Zaidi, AA; Khan, H; Kumar, S; Owais, MTB; Jaafar, J; Suhaimin, NS; <b>Wahab, YA</b> ; Dutta, K; Asif, M; Hatta, SFWM; Uzair, M	Q2
91	Indoleninyl-substituted pyrimido[1,2-b]indazoles via a facile condensation reaction	Ramle, AQ; Fei, CC; Tiekink, ERT; <b>Basirun, WJ</b>	Q2
92	Highly mesoporous g-c3n4 with uniform pore size distribution via the template-free method to enhanced solar-driven tetracycline degradation	Phoon, BL; <b>Lai, CW</b> ; Pan, GT; Yang, TCK; <b>Juan, JC</b>	Q2
93	Growth and computational studies on vanillin isoniazid single crystals	Mugeshini, S; Santhakumari, R; Rajeswari, N; Amudha, G; Chandrika, D; <b>Sagadevan, S</b>	Q2
94	Gold–carbon nanocomposites for environmental contaminant sensing	Rahmati, S; Doherty, W; Babadi, AA; Mansor, MSAC; <b>Julkapli, NM</b> ; Hessel, V; Ostrikov, K	Q2
95	Facile synthesis of biocompatible sub-5 nm alginate-stabilised gold nanoparticles with sonosensitising properties	Beishenaliev, A; Faruqu, FN; <b>Leo, BF</b> ; Lit, LC; Loke, YL; Chang, CC; Teo, YY; Chik, Z; Foo, YY; Chung, LY; Kiew, LV	Q2
96	Electrocatalytic and structural properties and computational calculation of PAN-EC-PC-TPAI-I2gel polymer electrolytes for dye sensitized solar cell application	Chowdhury, FI; Islam, J; Arof, AK; Khandaker, MU; Zabed, HM; <b>Khalil, I</b> ; Rahman, MR; Islam, SM; Karim, MR; Uddin, J	Q2
97	Effect of temperature, syngas space velocity and catalyst stability of co-mn/cnt bimetallic catalyst on fischer tropesch synthesis performance	Akbarzadeh, O; Alshahateet, SF; Zabidi, NAM; Moosavi, S; Kordijazi, A; Babadi, AA; <b>Hamizi, NA</b> ; <b>Wahab, YA</b> ; <b>Chowdhury, ZZ</b> ; <b>Sagadevan, S</b>	Q2
98	Drug delivery and antimicrobial studies of chitosan-alginate based hydroxyapatite bioscaffolds formed by the Casein micelle assisted synthesis	Jariya, SAI; Padmanabhan, VP; Kulandaivelu, R; Prakash, N; Mohammad, F; Al-Lohedan, HA; Paiman, S; Schirhagl, R; <b>Hossain, MAM</b> ; <b>Sagadevan, S</b>	Q2
99	Boronic-Acid-Modified Nanomaterials for Biomedical Applications	Aung, YY; Kristanti, AN; <b>Lee, HV</b> ; Fahmi, MZ	Q2
100	Characteristics investigation on heat transfer growth of sonochemically synthesized ZnO-DW based nanofluids inside square heat exchanger	Ahmed, W; <b>Chowdhury, ZZ</b> ; Kazi, SN; <b>Johan, MR</b> ; Akram, N; Oon, CS; Abdelrazek, AH	Q2
101	Enhanced photocatalytic degradation of methyl orange by coconut shell-derived biochar composites under visible LED light irradiation	Pang, YL; Law, ZX; Lim, S; Chan, YY; Shuit, SH; Chong, WC; <b>Lai, CW</b>	Q2
102	Highly Visible Light Active Ternary Polyaniline-TiO2-Fe3O4 Nanotube/Nanorod for Photodegradation of Reactive Black 5 Dyes	Jumat, NA; Khor, SH; <b>Basirun, WJ</b> ; <b>Juan, JC</b> ; Phang, SW	Q2
103	Influence of graphene concentration towards the thermo-acoustic and vibrational properties of graphene: polyvinyl alcohol composites	Ravichandran, S; Pushpanathan, K; <b>Sagadevan, S</b> ; <b>Marlinda, AR</b> ; Mohammad, F; Al-Lohedan, HA; <b>Johan, MR</b>	Q2
104	Influence of reaction temperature on the physicochemical characteristics of tin oxide nanoparticles	Rathinabala, R; Thamizselvi, R; <b>Sagadevan, S</b> ; Murugesan, K; Yusuf, MBM	Q2

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105	Quaternary nanorod-type BaInSbSe <sub>5</sub> semiconductor combined graphene-based conducting polymer (PPy) nanocomposite and highly sensing performance of H <sub>2</sub> O <sub>2</sub> & H <sub>2</sub> S gases	Oh, WC; Lim, CS; Liu, Y; <b>Sagadevan, S</b> ; Jang, WK; Biswas, MRUD	Q2
106	Short targeting multiplex PCR assay to detect and discriminate beef, buffalo, chicken, duck, goat, sheep and pork DNA in food products	Uddin, SMK; <b>Hossain, MAM</b> ; <b>Chowdhury, ZZ</b> ; Bin Johan, MR	Q2
107	Synthesis and optimization of high surface area mesoporous date palm fiber-based nanostructured powder activated carbon for aluminum removal	Basheer, AO; Hanafiah, MM; Alsaadi, MA; <b>Al-Douri, Y</b> ; Al-Raad, AA	Q2
108	Enhanced Photocatalytic Activity of rGO-CuO Nanocomposites for the Degradation of Organic Pollutants	<b>Sagadevan, S</b> ; Lett, JA; Weldegebriael, GK; Garg, S; Oh, W-C; <b>Hamizi, NA</b> ; Johan, MR	Q2
109	MoS <sub>2</sub> -Functionalized Graphene Composites-Potential Replacement for Lubricant Friction Modifier and Anti-Wear Additives	Ismail, NA; <b>Chowdhury, ZZ</b> ; Johan, MR; Zulkifli, N	Q2
110	Influence of Reaction pH towards the Physicochemical Characteristics of Phosphorylated Polyvinyl Alcohol-Aluminum Phosphate Nanocomposite	Saat, AM; Kamil, MS; <b>Hamizi, NA</b> ; Badruddin, IA; Ghazali, N; <b>Sagadevan, S</b> ; Kamangar, S; Khan, TMY; Johan, MR	Q2
111	Bioactive Agent-Loaded Electrospun Nanofiber Membranes for Accelerating Healing Process: A Review	Mousavi, SM; Nejad, ZM; Hashemi, SA; Salari, M; Gholami, A; Ramakrishna, S; Chiang, W-H, <b>Lai, CW</b>	Q2
112	Butylated hydroxy benzylidene ring: an important moiety for antioxidant synergism of semicarbazones	Nath, AR; Yehye, WA; <b>Johan, MR</b>	Q2
113	Synthesis, growth, spectral and computational studies on aminomethylpyridinium trichloroacetate single crystal	Rajeswari, N; Santhakumari, R; Mugeshini, S; Chandrika, D; <b>Sagadevan, S</b>	Q2
114	Carbon Nanomaterials for Wastewater Treatment	Abbo, HS; Gupta, KC; <b>Khaligh, NG</b> ; Titinchi, SJJ	Q2
115	Statistical Modeling and Performance Optimization of a Two-Chamber Microbial Fuel Cell by Response Surface Methodology	Naseer, MN; Zaidi, AA; Khan, H; Kumar, S; Owais, MT; <b>Wahab, YA</b> ; Dutta, K; Jaafar, J; <b>Hamizi, NA</b> ; Islam, MA; Hussin, H; Badruddin, IA; Alrobei, H	Q2
116	Halal and Kosher gelatin: Applications as well as detection approaches with challenges and prospect	Uddin, SMK; <b>Hossain, MAM</b> ; <b>Sagadevan, S</b> ; Amin, MA; Johan MR	Q2
117	A Study on Machine Learning Methods' Application for Dye Adsorption Prediction onto Agricultural Waste Activated Carbon	Moosavi, SM; Manta, O; El-Badry, YA; Hussein, EE; El-Bahy, ZM; <b>Fawzi, NFM</b> ; Urbonavičius, J; Moosavi, SMH	Q2
118	Facile fabrication of Au-loaded CdO nanoconstructs with tuned properties for photocatalytic and biomedical applications	<b>Sagadevan, S</b> ; Vennila, S; Muthukrishnan, L; Murugan, B; Lett, JA; <b>Hossain, MAM</b>	Q2
119	Naproxen release aspect from boron-doped carbon nanodots as a bifunctional agent in cancer therapy	Wibrianto, A; Putri, DF; Sakti, SCW; <b>Lee, HV</b> ; Fahmi, MZ	Q2

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120	Supported Metal Oxide Catalysts for CO <sub>2</sub> Fischer-Tropsch Conversion to Liquid Fuels-A Review	<b>Suppiah, DD</b> ; Daud, WMAW; <b>Johan, MR</b>	Q2
121	Photocatalytic degradation of triclocarban in aqueous solution using a modified zeolite/TiO <sub>2</sub> composite: kinetic, mechanism study and toxicity assessment	Arifin, SNH; Mohamed, RMSR; Al-Gheethi, A; <b>Lai, CW</b> ; Gopalakrishnan, Y; Hairuddin, ND; Vo, D-V	Q2
122	Experimental study on the effect of bio-functionalized graphene nanoplatelets on the thermal performance of liquid flat plate solar collector	Kumar, L; Kazi, S; Masjuki, H; Zubir, M; <b>Jahan, A</b> ; Sean, OC	Q2
123	Flower-like SnO <sub>2</sub> Nanoparticle Biofabrication Using Pometia pinnata Leaf Extract and Study on Its Photocatalytic and Antibacterial Activities	Fatimah, I; Purwiandono, G; Hidayat, H; <b>Sagadevan, S</b> ; Ghazali, SAISM; Oh, WC; Doong, RA	Q2
124	The improved photocatalytic activity of highly expanded MoS <sub>2</sub> under visible light emitting diodes	Lai, MTL; <b>Lee, KM</b> ; Yang, TCK; Pan, GT; <b>Lai, CW</b> ; Chen, CY; Johan, MR; <b>Juan, JC</b>	Q2
125	Physico-chemical characteristics of nanocellulose at the variation of catalytic hydrolysis process	Rashid, ESA; Gul, A; Yehya, WAH; <b>Julkapli, NM</b>	Q2
126	Rapid in-situ detection kit (RisK): Development of loop-mediated isothermal amplification (LAMP) assay for the rapid identification of selected invasive alien fish in Malaysian freshwaters	Vythalingam, LM; <b>Hossain, MAM</b> ; Bhassu, S	Q3
127	Synthesis, growth, supramolecularity and antibacterial efficacy of 3,4-dimethoxybenzoic acid single crystals	Rajendran, A; <b>Sagadevan, S</b> ; Lett, JA; Kaliaraj, GS; Fatimah, I; Mohammad, F; Al-Lohedan, HA; Alshahateet, SF; Podder, J	Q3
128	Influence of pomegranate inclusion towards the electrochemical performance of lithium hexafluorophosphate in lithium-ion batteries	Selvapandiyam, M; Balaji, G; Sivakumar, N; Prasath, M; <b>Sagadevan, S</b>	Q3
129	Fabrication of Magnesium oxide nanoparticles using combustion method for a biological and environmental cause	Tharani, K; Christy, AJ; <b>Sagadevan, S</b> ; Nehru, LC	Q3
130	Enhanced electrical and magnetic properties of CuO/MgO nanocomposites	Selvi, KT; Mangai, KA; Priya, M; <b>Sagadevan, S</b>	Q3
131	Plasmonic SERS active nanostructured Ag-SiO <sub>2</sub> at optimum volume ratio synthesized via sol-gel technique	Taib, T; <b>Johan, MR</b> ; <b>Basirun, WJ</b>	Q3
132	A comparative approach on One-Dimensional ZnO nanowires for morphological and structural properties	Ghazali, MNI; Izmi, MA; Mustaffa, SNA; Abubakar, S; Husham, M; <b>Sagadevan, S</b> ; Paiman, S	Q3
133	Synthesis, structure elucidation, vibrational and thermal behavior study of new one-core dication molten-salt	Zaharani, L; <b>Khaligh, NG</b> ; <b>Johan, MR</b>	Q3
134	Enhanced photocatalytic degradation efficiency of graphitic carbon nitride-loaded CeO <sub>2</sub> nanoparticles	Subashini, A; Prasath, PV; <b>Sagadevan, S</b> ; Lett, JA; Fatimah, I; Mohammad, F; Al-Lohedan, HA; Alshahateet, SF; Oh, WC	Q3
135	Clitorea ternatea-mediated silver nanoparticle-doped hydroxyapatite derived from cockle shell as antibacterial material	Citradewi, PW; Hidayat, H; Purwiandono, G; Fatimah, I; <b>Sagadevan, S</b>	Q3

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136	Synthesis and characterization of polypyrrole-coated iron oxide nanoparticles	Lett, JA; <b>Sagadevan, S</b> ; Alshahateet, SF; Murugan, B; Jasni, AH; Fatimah, I; <b>Hossain, MAM</b> ; Mohammad, F; Oh, WC	Q3
137	Photocatalytic and antibacterial performance of iron oxide nanoparticles formed by the combustion method	Tharani, K; Christy, AJ; <b>Sagadevan, S</b> ; Nehru, LC	Q3
138	Surface modification of Carbon-Based Nanoadsorbents for the Advanced Wastewater Treatment	Gul, A; <b>Khaligh, NG</b> ; <b>Julkapli, NM</b>	Q3
139	Solar energy and TiO <sub>2</sub> nanotubes: Biodiesel production from waste cooking olive oil	<b>Khaligh, NG</b> ; Mihankhah, T; Shahnavaaz, Z; Zaharani, L; <b>Johan, MR</b>	Q3
140	Synthesis, growth, crystal structure, vibrational, DFT and HOMO, LUMO analysis on protonated molecule-4-aminopyridinium nicotinate	Vasanthakumari, R; Nirmala, W; <b>Sagadevan, S</b> ; Mugeshini, S; Rajeswari, N; Balu, R; Santhakumari, R	Q3
141	Photocatalytic activity and antibacterial efficacy of titanium dioxide nanoparticles mediated by Myristica fragrans seed extract	<b>Sagadevan, S</b> ; Lett, JA; Vennila, S; Prasath, PV; Kaliaraj, GS; Fatimah, I; Leonard, E; Mohammad, F; Al-Lohedan, HA; Alshahateet, SF; Lee, CT	Q3
142	Evaluation on enhanced heat transfer using sonochemically synthesized stable zno-eg@dw nanofluids in horizontal calibrated circular flow passage	Ahmed, W; <b>Chowdhury, ZZ</b> ; Kazi, SN; <b>Bin Johan, MR</b> ; Badruddin, IA; Soudagar, MEM; Kamangar, S; Mujtaba, MA; Gul, M; Khan, TMY	Q3
143	Synthesis, growth, structural, spectroscopic, optical, thermal, DFT, HOMO–LUMO, MEP, NBO analysis and thermodynamic properties of vanillin isonicotinic hydrazide single crystal	Buvaneswari, M; Santhakumari, R; Usha, C; Jayasree, R; <b>Sagadevan, S</b>	Q3
144	Recent Progress in Electrochemical Detection of Human Papillomavirus (HPV) via Graphene-Based Nanosensors	<b>Mousavi, SM</b> ; Behbudi, G; Hashemi, SA; Babapoor, A; Chiang, WH; Ramakrishna, S; Rahman, MM; <b>Lai, CW</b> ; Gholami, A; Omidifar, N; Yousefi, K	Q3
145	Synthesis, growth and computational studies on vanillin nicotinamide single crystals	Buvaneswari, M; Santhakumari, R; Jayasree, R; <b>Sagadevan, S</b>	Q3
146	Microwave-assisted synthesis, characterization and photocatalytic activity of mercury vanadate nanoparticles	Dhanalekshmi, SB; Priya, R; Selvi, KT; Mangai, KA; Weldegebrerial, GK; Garg, S; <b>Sagadevan, S</b>	Q3
147	Synthesis of mrgo nanocomposites as a potential photocatalytic demulsifier for crude oil-in-water emulsion	Lau, ZY; Tan, KS; Khe, CS; <b>Lai, CW</b> ; You, KY; Tan, WK	Q3
148	Synthesis and characterization of two new molten acid salts: Safe and greener alternatives to sulfuric acid for the hydrolytic conversion of 1,1,1,3-tetrachloro-3-phenylpropane to cinnamic acid	Zaharani, L; Gorjian, H; <b>Johan, MR</b> ; <b>Khaligh, NG</b>	Q3
149	Solid-phase synthesis of arylidene and alkylidene malonates, as versatile intermediates, catalyzed using mesoporous poly-melamine–formaldehyde as a nitrogen-rich porous organic polymer (POP)	<b>Khaligh, NG</b> ; Gorjian, H; Fahim, H; Titinchi, SJJ	Q3

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150	Structural, electronic, magnetic and mechanical properties of the full-Heusler compounds Ni <sub>2</sub> Mn(Ge,Sn) and Mn <sub>2</sub> NiGe	Asli, N; Dahmane, F; Mokhtari, M; Zouaneb, C; Batouche, M; Khachai, H; Srivastava, V; Naqib, SH; <b>Al-Douri, Y</b> ; Bouhemadou, A; Khenata, R	Q3
151	Phenol removal from aqueous solution using synthetic V-shaped organic adsorbent: Kinetics, isotherm, and thermodynamics studies	Al-Trawneh, SA; Jiries, AG; Alshahateet, SF; <b>Sagadevan, S</b>	Q3
152	Investigation on antibacterial and hemolytic properties of magnesium-doped hydroxyapatite nanocomposite	Jenifer, A; Senthilarasan, K; Arumugam, S; Sivaprakash, P; <b>Sagadevan, S</b> ; Sakthivel, P	Q3
153	Enhanced gas sensing and photocatalytic activity of reduced graphene oxide loaded TiO <sub>2</sub> nanoparticles	<b>Sagadevan, S</b> ; Lett, JA; Weldegebriael, GK, ud Dowla Biswas, MR; Oh, WC; Alshahateet, SF; Fatimah, I; Mohammad, F; Al-Lohedan, HA; Paiman, S; Podder, J; <b>Johan, MR</b>	Q3
154	Electrochemical and photocatalytic studies of Ta <sub>3</sub> N <sub>5</sub> -TaON-PEDOT-PANI nanohybrids	Munusamy, S; Sivaranjan, K; Sabhapathy, P; Ramesh, PS; Narayanan, V; Mohammad, F; <b>Sagadevan, S</b>	Q3
155	DNA/Nano based advanced genetic detection tools for authentication of species: Strategies, prospects and limitations	Khalil, I; Hashem, A; Nath, AR; <b>Muhd Julkapli, N</b> ; Yehye, WA; <b>Basirun, WJ</b>	Q3
156	Anticancer Activity of 5-Fluorouracil-Loaded Nanoemulsions Containing Fe <sub>3</sub> O <sub>4</sub> /Au Core-Shell Nanoparticles	Izadiyan, Z; Shamel, K; Teow, SY; Yusefi, M; Kia, P; <b>Rasouli, E</b> ; Tareq, MA	Q3
157	An Overview of Recent Advances in the Synthesis of Organic Unsymmetrical Disulfides	Ong, CL; Titinchi, S; <b>Juan, JC</b> ; <b>Khaligh, NG</b>	Q3
158	Current trends in the green syntheses of tin oxide nanoparticles and their biomedical applications	<b>Sagadevan, S</b> ; Lett, JA; Fatimah, I; Lokanathan, Y; Leonard, E; Oh, WC; Hossain, MAM; <b>Johan, MR</b>	Q3
159	Genomic analysis revealing the resistance mechanisms of extended-spectrum beta-lactamase-producing Klebsiella pneumoniae isolated from pig and humans in Malaysia	Mobasser, G; <b>Thong, KL</b> ; Teh, CSJ	Q3
160	Photoelectrochemical reduction of dissolved carbon dioxide over Ni(OH) <sub>2</sub> into organic oxygenates	Mat, ANC; <b>Basirun, WJ</b> ; Shahid, MM	Q3
161	Practical and efficient recyclable oxidative system for the preparation of symmetrical disulfides under aerobic conditions	Ling, OC; Heidelberg, T; <b>Ching, JJ</b> ; <b>Khaligh, NG</b>	Q3
162	Simple dispersion of graphene incorporated rubber composite for resistive pressure sensor application	<b>Marlinda, A</b> ; Kamaruddin, NH; Fadilah, A; Said, M; <b>Hamizi, NA</b> ; <b>Johan, MR</b>	Q3
163	Thermogravimetric analysis of slow pyrolysis in chicken skin waste	Anuar, NF; Ma'Amor, A; Mahmud, HNME; <b>Abdullah, FZ</b> ; Alias, R; Musa, M; Muhamad, EN	Q3
164	A Review on Health Benefits of Malva sylvestris L. Nutritional Compounds for Metabolites, Antioxidants, and Anti-Inflammatory, Anticancer, and Antimicrobial Application	<b>Mousavi, SM</b> ; Hashemi, SA; Behbudi, G; Mazraedoost, S; Omidifar, N; Gholami, A; Chiang, W-H; Babapoor, A; Rumjijt, NP	Q3

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No	Article Title	Author	Quartile
165	Simultaneous detection of dual food adulterants using graphene oxide and gold nanoparticle based surface enhanced Raman scattering duplex DNA biosensor	Khalil, I; Yehye, WA; <b>Julkapli, NM</b> ; Sina, AAI; Chowdhury, FI; Khandaker, MU; Hsiao, VKS; <b>Basirun, WJ</b>	Q3
166	Morphological and optical investigations of the NiZnFe <sub>2</sub> O <sub>3</sub> quaternary alloy nanostructures for potential application in optoelectronics	Al-Douri, AT; Ibraheem, AS; Gdoura, R; <b>Al-Douri, Y</b> ; El-Rehim, AFA	Q3
167	One-Pot Synthesis of Coumarins Using 1,1'-Butylenebis (3-sulfo-3H-imidazol-1-ium) Chloride as an Efficient Task-Specific Ionic Liquid	<b>Khaligh, NG</b> ; Mihankhah, T; <b>Johan, MR</b>	Q3
168	Rapid porcine detection in gelatin-based highly processed products using loop mediated isothermal amplification	Tasrip, NA; Desa, MNM; Mokhtar, NFK; Sajali, N; Hashim, AM; Ali, ME; Cheah, YK	Q3
169	Antimicrobial azo molecules: a review	Banaszak-Leonard, E; Fayeulle, A; Franche, A; <b>Sagadevan, S</b> ; Billamboz, M	Q3
170	Kinetics and equilibrium studies for the removal of heavy metal ions from aqueous solution using the synthesized C-4-bromophenylcalix[4] resorcinarene adsorbent	Al-Mahadeen, MM; Jiries, AG; Al-Trawneh, SA; Alshahateet, SF; Eldouhaibi, AS; <b>Sagadevan, S</b>	Q3
171	Synthesis, characterization, and photocatalytic activity of PPy/ SnO <sub>2</sub> nanocomposite	<b>Sagadevan, S</b> ; Lett, JA; Weldegebriela, GK; Imteyaz, S; <b>Johan, MR</b>	Q3
172	Biosynthesized gold nanoparticles-doped hydroxyapatite as antibacterial and antioxidant nanocomposite	Fatimah, I; Citradewi, PW; Yahya, A; Nugroho, BH; Hidayat, H; Purwiandono, G; <b>Sagadevan, S</b> ; Mohd, G; Sheikh AIS; Ibrahim, S	Q3
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174	Bone tissue engineering potentials of 3D printed magnesium-hydroxyapatite in polylactic acid composite scaffolds	Lett, JA; <b>Sagadevan, S</b> ; Léonard, E; Fatimah, I; <b>Hossain, MAM</b> ; Mohammad, F; Al-Lohedan, HA; Paiman, S; Alshahateet, SF; Razak, SI; <b>Johan, MR</b>	Q3
175	First-Principles Calculations to Investigate Structural, Electronic, Elastic, Magnetic, and Thermodynamic Properties of Full-Heusler Rh <sub>2</sub> MnZ (Z = Zr, Hf)	Mentefa, A; Boufadi, FZ; Ameri, M; Gaid, F; Bellagoun, L; Odeh, AA; <b>Al-Douri, Y</b>	Q4
176	Temperature effect to investigate optical and structural properties of AZO nanostructures for optoelectronics	Gherab, K; <b>Al-Douri, Y</b> ; Hashim, U; Khenata, R; Bouhemadou, A; Ameri, M	Q4
177	4,4'-trimethylenedipiperidine as a nitrogen heterocycle solvent and/or catalyst: Liquid phase tandem Knoevenagel-Michael condensation	Zaharani, L; <b>Khaligh, NG</b> ; Gorjian, H; <b>Johan, MR</b>	Q4
178	Synthesis and characterization of low-cost carbon nanotubes by chemical vapor deposition for aluminum removal from aqueous solution	Basheer, AO; Hanafiah, MM; Alsaadi, MA; Yaacob, WZW; <b>Al-Douri, Y</b> ; Bouhemadou, A	Q4

Publicity and Marketing

# PUBLICATIONS 2021

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180	Antioxidant and cytotoxicity activities of butylated hydroxytoluene ligands capped gold nanoparticles	Ahmad, MH; Yehye, WA; Abd Rahman, N; Al-Ani, LA; <b>Johan, MR</b> ; Lu, J; Hashim, NM	Q4
181	One-step differential detection of Salmonella enterica serovar Typhi, serovar Paratyphi A and other Salmonella spp. by using a quadruplex real-time PCR assay	Teh, CSJ; Lau, MY; Chong, CW; Ngoi, ST; Chua, KH; Lee, WS; <b>Thong, KL</b>	Q4
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183	Preparation of calcium alginate-encapsulated sulfur particles and their application in metal nanoparticle capture: A case study of silver nanoparticles	Lee, KM; Yoong, WC; Loke, CF; <b>Juan, JC</b> ; Yusoff, K; Mohtarrudin, N; Lim, TH	Q4
184	Structural, electronic and thermodynamic investigation of Ag <sub>2</sub> GdSi, Ag <sub>2</sub> GdSn and Ag <sub>2</sub> Gd Pb Heusler alloys: First-principles calculations	Zoubir, MK; Fadila, B; Keltoum, B; Ibrahim, A; Farah, BL; <b>Al-Douri, Y</b> ; Mohammed, A	Q4
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186	Polymer bonded Graphene- LaNiSbWO <sub>4</sub> nanocomposite (G-LaNiSbWO <sub>4</sub> -PPy) for CO <sub>2</sub> sensing performance under normal temperature condition	Oh, W-C; Liu, Y; <b>Sagadevan, S</b> ; Fatema, KN; Biswas, MRUD	Q4
187	Larvicidal efficacy of temephos impregnated onto kenaf cellulose nanofibre to control Aedes aegypti (Diptera: Culicidae) larvae	Pengiran, H; Kamaldin, J; <b>Leo, BF</b> ; Ahmad, H	Q4
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190	The improved photocatalytic activity of highly expanded MoS <sub>2</sub> under visible light emitting diodes	Lai, MTL; <b>Lee, KM</b> ; Yang, TCK; Pan, GT; <b>Lai, CW</b> ; Chen, CY; Johan, MR; <b>Juan, JC</b>	N/A
191	Physico-chemical characteristics of nanocellulose at the variation of catalytic hydrolysis process	Rashid, ESA; Gul, A; Yehya, WAH; <b>Julkapli, NM</b>	N/A

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201	The structural analysis of calcium doped BaTiO <sub>3</sub>	Sam, CC; Osman, RAM; Idris, MS; <b>Wahab, YA</b>	SCOPUS
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# BOOK 2021

No	Book in Chapter	Author	Quartile
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2	Farzad Raeisi, Seyyed Mojtaba Mousavi, Seyyed Alireza Hashemi, Leila Malekpour, Sonia Bahrani, Chin Wei Lai, Wei-Hung Chiang, Aziz Babapoor, Sargol Mazraedoost, Hossein Esmaili	Chapter 20: Application of biosurfactant as a demulsifying and emulsifying agent in the formulation of petrochemical products	Elsevier B.V, Amsterdam, The Netherlands
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4	Sonia Bahrani, Seyyed Mojtaba Mousavi, Seyyed Alireza Hashemi, Chin Wei Lai, Wei-Hung Chiang	Chapter 7: Self-healable core shell nanofibers	Wiley-Scrivener Publishing
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11	Shalini Muniandy, Chin Wei Lai, Thiruchelvi Pulingam, Bey Fen Leo	Chapter 3: Biosensors Based on Graphene	Materials Research Forum LLC
12	Seyyed Mojtaba Mousavi, Seyyed Alireza Hashemi, Najmeh Parvin, Chin Wei Lai, Sonia Bahrani, Wei-Hung Chiang, Sargol Mazraedoost	Chapter 5: Carbon Substrates for Flexible Supercapacitors	Wiley-Scrivener Publishing
13	Suresh Sagadevan, Mohd Rafie Johan, A.R. Marlinda, Omid Akbarzadeh, Karuppasamy Pandian, M.M. Shahid, Faruq Mohammad, Jiban Podder	Chapter 1: Background of energy storage	Elsevier B.V, Amsterdam, The Netherlands
14	Suresh Sagadevan, A.R. Marlinda, Zaira Zaman Chowdhury, Yasmin Binti Abdul Wahab, Nor Aliya Hamizi, M.M. Shahid, Faruq Mohammad, Jiban Podder, Mohd Rafie Johan	Chapter 2: Fundamental electrochemical energy storage systems	Elsevier B.V, Amsterdam, The Netherlands
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