

# IIUM & RESEARCH INNOVATION DAY 2024

**LEADING THE RESEARCH, PUBLICATION AND  
INNOVATION CULTURE: SOARING HIGH IN  
RESEARCH EXCELLENCE**

**TUESDAY | 2ND JULY 2024 | 25 ZULHIJJA 1445 H**

**GRAND HALL, OFFICE OF CAMPUS DIRECTOR,  
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, KUANTAN**

**FOR FURTHER INFORMATION:**

**[HTTPS://CONFERENCE.IIUM.EDU.MY/IRID/](https://conference.iium.edu.my/irid/)**



**SCAN ME**

**ORGANISER:**

**RESEARCH MANAGEMENT CENTRE, IIUM**

The IIUM Research and Innovation Day (IRID) 2024 is a prominent exhibition dedicated to health and sciences research, organized to showcase innovative research findings and foster research collaboration among scholars from the International Islamic University Malaysia (IIUM) and across Malaysia. This year's theme, **“LEADING THE RESEARCH, PUBLICATION AND INNOVATION CULTURE: SOARING HIGH IN RESEARCH EXCELLENCE,”** emphasizes the significance of publishing research outcomes to spread knowledge for humanity's benefit. The event is a joint effort with the Technology Transfer Office of the Research Management Centre, highlighting the potential for research projects to be selected for commercialization.

It offers a platform for interactive poster presentations, discussions, and the exhibition of creative innovations. The program aims to provide constructive feedback, facilitate the sharing of ideas, and encourage networking among researchers. **All submitted abstracts will be published in selected IIUM journals (MYCITE – indexed)** with awards for the best research and innovation in both student and staff categories. Participants are also encouraged to publish full articles in various IIUM journals. This initiative seeks to benefit attendees greatly, promoting experience sharing and the development of lasting relationships within the research community.

The objectives of the IRID 2024 are as follows:

- To identify the prominent researchers in Malaysia mainly IIUM Kuantan.
- To inculcate research culture among academic staff and students (postgraduate and undergraduate).
- To showcase the research findings and products of academic staff and students.
- To encourage inter Kulliyah/ Universities/ Institutions collaboration in research and innovation.
- To identify the best research outputs and products to represent IIUM at national and international competition.

The topics are

1. Basic Health Sciences
2. Applied Health Sciences
3. Medical & Health Sciences
4. Nursing & Midwifery
5. Pharmacy
6. Dentistry
7. Engineering
8. Biological Sciences
9. Art & Social Sciences



Bismillahirrahmanirrahim.

Assalamualaikum warahmatullah wabarakatuh.

Alhamdulillah, it gives me great pleasure to welcome you to IIUM Research and Innovation Day IRID 2024: An Exhibition for Health and Sciences Research. This programme aims to showcase innovative research findings and encourage research collaboration among researchers from IIUM and also around Malaysia.

The theme for this year's event is LEADING THE RESEARCH, PUBLICATION AND INNOVATION CULTURE: SOARING HIGH IN RESEARCH EXCELLENCE.

We want to highlight again the importance of publishing research results as a way to disseminate knowledge for the benefit of mankind.

This year's program is a collaboration with the Technology Transfer Office of the Research Management Centre. Your research has the potential to be selected as a potential research product for commercialisation.

The poster presentation will allow interaction and discussion among researchers. We also invite researchers who have creative innovations to showcase their products at this event.

I hope this event will serve as a good platform for you to receive constructive feedback, share ideas and spark friendships with other researchers.

All submitted abstracts will be published in selected IIUM journals (MYCITE – indexed), and awards will be given for best research and innovation among the students and staff categories. Participants are also invited to publish their research as full articles in IIUM journals.

I hope everyone benefits greatly from this event; I am looking forward to knowing you, sharing our experiences and building a lasting relationship together.

Thank you.



**IIUM Research and Innovation Day (IRID) 2024**  
**2<sup>nd</sup> July 2024 (Tuesday)**  
**Grand Hall, Office of the Campus Director**  
**International Islamic University Malaysia (Kuantan Campus)**

**Program Schedule**

| Time            | Event                                                                                                                                                                                                                                      |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>8.30 am</b>  | Registration of participants                                                                                                                                                                                                               |
| <b>8.45 am</b>  | Arrival of VIP and Guests                                                                                                                                                                                                                  |
| <b>9.00 am</b>  | Negaraku, Pahang Song, IIUM Song                                                                                                                                                                                                           |
| <b>9.05 am</b>  | Recitation of Dua                                                                                                                                                                                                                          |
| <b>9.10 am</b>  | Opening remarks<br><b>Prof. Dr. Nazri Mohd. Yusof</b><br>Chairman IIUM Research and Innovation Day 2024                                                                                                                                    |
| <b>9.15 am</b>  | Officiating Speech & Officiating Ceremony Gimmick<br><b>YB Dato' Mohamad Nizar Bin Dato' Sri Mohamad Najib, DSAP</b><br>Pahang State Executive Councillor (EXCO)<br>Investment, Industrial Development, Science, Technology and Innovation |
| <b>9.25 am</b>  | Token of appreciation for external guest                                                                                                                                                                                                   |
| <b>9.35 am</b>  | Video Presentation<br>Group photo                                                                                                                                                                                                          |
| <b>9.40am</b>   | VIP visit the poster exhibitions and showcase                                                                                                                                                                                              |
| <b>10.00 am</b> | Refreshments for VIPs and Invited guests                                                                                                                                                                                                   |
| <b>10.30 am</b> | Commercialization Talk 1<br><b>Prof. Dr. Mohd Shahir Shamsir Omar</b> (Universiti Teknologi Malaysia, UTM)<br>Title: "From Discovery to Disruption: Transforming Research into Start-up Success"                                           |
| <b>11.15 am</b> | Poster evaluations                                                                                                                                                                                                                         |
| <b>1.15 pm</b>  | Lunch break                                                                                                                                                                                                                                |
| <b>2.00 pm</b>  | Poster evaluations continues                                                                                                                                                                                                               |
| <b>3.00 pm</b>  | Commercialization Talk 2<br><b>Madam Mariatini Othman</b> (Senior Vice President, Technology Advisory Services, MTDC)<br>Title: "Unlocking Opportunities: The Dynamics of Commercialization Ecosystems"                                    |
| <b>3.00 pm</b>  | Scientific Research Meeting                                                                                                                                                                                                                |
| <b>4.00 pm</b>  | Announcement of Winners for best participants                                                                                                                                                                                              |
| <b>4.15 pm</b>  | Prize giving ceremony and closing remarks<br><b>Prof. Dr. Nazri Mohd. Yusof</b><br>Chairman IIUM Research and Innovation Day 2024                                                                                                          |
| <b>5.00 pm</b>  | End of program and adjourn                                                                                                                                                                                                                 |

**Concurrent Events (10.00 am – 4.00 pm) @ Grand Hall, IIUM Kuantan**

**One Stop Research Clinics by IIUM Gombak**

1. Grant Initiative Unit (GIU)
2. Grant Management Unit (GMU)
3. Research Excellent Unit (REU)
4. Technology Transfer Office (TTO)
5. Copyright and MyRA Publication (Dar Al-Hikmah Library)

*As of 24/6/2024*

## Portable Mini Solar Dryer

Zafri Azran Abdul Majid<sup>1</sup>, Zairul Azrul Zakaria Muhammad Amin Harun, Ahmad Faris Ismail, Sany Izzan Ihsan, Kamaruzzaman Sopian, Amir Abdul Razak, Ahmad Fadzil Sharol, Nabila Sulaiman, Syed

Noh Syed Abu Bakar

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**PURPOSE:** this study aims to design, develop and investigate the thermal performance of an Evacuated Glass-Thermal Absorber Tube Collector (EGATC) for air heating applications.

**METHODS:** EGATC was designed from a conventional HP ETC, and the performance was compared through parameter and performance experimental setup. The three days performance experiments showed EGATC performed better with daily outlet temperature increased by 9.0%, 7.2%, and 4.9%, respectively, with an average of 7.0% compared with HP ETC. EGATC also had greater efficiency compared to HP ETC, with the average efficiency for EGATC being 51.3% compared with HP ETC's 41.8%. EGATC's inner absorber was designed to create a double pass flow with the ventilated chamber.

**RESULTS:** The parameter experiment shows the design could increase the outlet temperature by a difference of 6.3% (for stainless- steel inner absorber compared with insulation material inner absorber). Regarding energy storage, the stainless-steel inner absorber also had an advantage compared to the insulation material inner absorber, with a 1.3% difference. On the effect of other parameters such as inner absorber surface area air contact (perforated fin), outer absorber selective coating surface, outer absorber wall thickness, double layer non-vacuum glass tube, single layer transparent outer glass tube, and single-layer thin film inner glass tube was investigated by parameter experimental setup on energy storage. It was proven that the outlet temperature, energy store, and energy buffer could be enhanced with the combination of wind speed 0.9 m/s, zero (0) perforated fin, non-coating outer absorber, and 1mm outer absorber wall thickness. It was also reported that double-layer vacuum glass tubes promise better thermal performance enhancement compared with double-layer non-vacuum glass tubes, single layer transparent outer glass tubes, and single-layer thin film inner glass tubes. The mathematical equation of each EGATC component was formulated based on the first law of thermodynamics. The total acceptable error of 5% shows that the model at each node was valid. The performance curves for those 0 fins (equation), 0 fin (experimental), and 3 fins (experimental) were obtained. The results showed that the efficiency (collector + storage) was affected by the number of fins. The efficiency (collector + storage) was 68.7%, 71.2%, and 71.0%, respectively.

**CONCLUSION:** The application of EGATC in air heating applications proved beneficial to the application of solar drying processes, especially in equatorial climate countries such as Malaysia. Furthermore, it can be applied as one of the home appliance as a Portable Mini Solar Dryer.