

## Conference (DAM2IC 2022) Report

### **International Conference by Department of Mechanical Engineering, SOET**

#### **Introduction**

An international conference on “Design and Applications of Multifunctional Materials, Interfaces, and Composites (DAM2IC-22)” on June 4-6, 2022 through virtual mode was organized by the Department of Mechanical Engineering of School of Engineering and Technology (K. R. Mangalam University) in association with State University of Aerospace and Instruments, Saint Petersburg, Russia and the State University of Management, Moscow, Russia to share the latest research trends in technology at the global level.

More than 200 young and dynamic technocrats and research enthusiasts shared a common platform to exchange their ideas and work with like-minded audiences. The presence of dignitaries, an impressive lineup of scholars from across the globe, the support of sponsors (SERB) and media partners, and an array of carefully selected, well-researched and well-presented papers of the related domain are significant aspects were base of successful completion of the conference. The conference was applauded for the 6 sessions besides the Inaugural and Valedictory sessions. This Conference has, without a shade of doubt, made the academic fraternity richer, with the additional literature in form of scholarly works on the subject. This three-day event offered opportunities to the participating audiences to interact with academicians, scholars, and experts from all over the world who deliberated upon and covered topics around the recent trends in Multifunctional Materials, Interfaces, Composites, etc. The views expressed and explored on this platform by the resource persons and paper presenters made the audience rethink ideas which we cling on to unthinkingly in our day-to-day life.

Each session began with the address of coordinator and introduces the session chair with series of presenters. Each presenter was allowed for the presentation of 20 minute (inclusive Q&A round from audience and session chairperson). The Conference owes its success to the able guidance of Chairman Mr. Rohit Gupta, and the hard work put in by the entire organizing team led by Dr. Kaushal Kumar (Convenor), Prof. (Asst.) Kriti Sharma, Prof. (Asst.) Sarah Khan, Dr. Jarnail Singh, Dr. Prabhakar Bhandari, Dr. Bhavesh Vyas and Prof. (Asst.) Surendra Kumar Yadav. The Hon'ble Chief Guest Dr. Krill inaugurated the Conference on 4<sup>th</sup> July 2022 along with Dr. Saurav Dixit, being the Chairperson for this session. Dr. Kaushal Kumar, Convenor of

the conference presented the theme of the conference in a lucid manner for the understanding of the audience. Luminaries from the world of research and academics that graced the event included Dr. M. D. Naushad Javed (SMAS, K. R. Mangalam University), Dr. Lalit Ranakoti (Graphic Era Deemed to be university), Dr. Sahil Mehta (SOAS, K. R. Mangalam University), Dr. Kamal Singh Rawat (MIET, Meerut), Dr. Krill (St. Petersburg State University of Aerospace Instrumentation, Russia), Dr. Gurmeet (Chandigarh University, Chandigarh), Dr. Vikas Goyat (SRM University Delhi-NCR Campus), Dr. Kristina (West Pomeranian University of Technology, Szczecin, Poland), Dr. Himanshu Manchanda (Guru Jambheshwar University of Science and Technology, Hisar), Dr. Satish Kumar (NIT, Jamshedpur), Dr. Chandra Mohan (SBAS, K. R. Mangalam University), Dr. Narendra Budhiraja (Satish Chander Dhawan Govt. College Ludhiana, Punjab).

### Objectives

- Integration of the scientific community and academicians involved in different areas of materials.
- Presentation of the latest research results in the field of materials and its related areas.
- Exchange of ideas and experience of the research and work in material engineering.
- Identification of new scientific research areas and practical challenges
- Training and development of the academic staff/ Research Scholar/ Industry persons.

### Content for the event

The Conference Paper Review Committee has accepted only 150 out of more than 200 research papers received. All the resource persons conducted very engaging and fruitful sessions. Total of six plenary sessions were conducted during the conference and the details of each session are tabulated in Table. 1.

Session No.	Session Chair	Session co-Ordinator
1	Dr. M. D. Naushad Javed Dr. Lalit Ranakoti	Dr. Prabhakar Bhandari, Dr. Jarnail Singh
2	Dr. Sahil Mehta Dr. Kamal Singh Rawat	Dr. Kaushal Kumar Dr. Saurav Dixit
3	Dr. Krill Dr. Gurmeet	Prof. (Asst.) Kriti Sharma Prof. (Asst.) Sarah Khan
4	Dr. Vikas Goyat Dr. Kristina	Dr. Bhavesh Vyas Dr. Prabhakar Bhandari

5	Dr. Himanshu Manchanda Dr. Satish Kumar	Prof. (Asst.) Kriti Sharma Prof. (Asst.) Sarah Khan
6	Dr. Chandra Mohan Dr. Narendra Budhiraja	Dr. Kaushal Kumar Dr. Jarnail Singh

Further, each plenary session was also awarded one best paper based on the various parameters viz, Presentation, Innovation, Result and Conclusion, time duration and Applicability to the society. To provide the best paper in the session, the award sheet containing the detailed specification about the presenter was shared with both the session chairs. Based on scores given by both session chairs, the best paper was selected. The details of the best paper awardee for each session are tabulated in Table 2.

Session No.	Paper ID	Presenter	Paper Title
1	8348	Md Zia Ul Haq	Effect of using plastic waste on mechanical properties of fly ash based geopolymers concrete
2	3381	Nirmal Singh	Synthesis and Characterization of Metal-Based Nanoparticles and their Effect on Seed Quality Parameters of American Varieties of Cotton
3	5299	Neeti Arora	An experimental study based on heat transfer and pressure drop analysis of $Al_2O_3$ /water Nano fluids in a circular tube
4	6889	Saurabh Jain	Block chain Technology and Healthcare 4.0: A Quick Overview
5	8623	Pascal Muam Mah	Integration of Sensors and predictive analysis with Machine learning as a modern tool for economic activities and a major step to fight against climate change
6	1456	Jennifer Robinsons	Sustainable and environmental friendly energy material

## Outcomes

Expected outcomes of the conference are:

1. Shared understanding on recent development in Multifunctional Materials, Interfaces, and Composites.

2. Interactions among various researchers and academicians regarding advancement in the materials, Nano applications, Internet of Things, Artificial Intelligence and Machine Learning.
3. The attendees learned about the interdisciplinary/ multi-disciplinary aspects approach for the optimization of research in the current scenario.
4. Provide a platform to interact with international aspirants in terms of latest research.

### **Conclusion**

A successful international conference on “Design and Applications of Multifunctional Materials, Interfaces, and Composites” lead to an exchange of innovative and remarkable work, ideas and upcoming future scope in the field of Nanotechnology, materials, concreters and many more domains to count upon. Further, various paths of collaborative research work were opened and gave fruitful outcomes in near future in terms of publications and patents. More than 200 young researchers shared a common platform to present their work in form of research papers.

### **Geo-tagged and Non-geo tagged photographs**

Valedictory Ceremony - DAM2IC-22

01:21:21

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KE TG  
Kapoor Eni... Team Baba...  
TB  
Team Baba... Anshika Pra...  
T +65  
TeamBaba...

Kaushal Kumar Prof. Saurav (Guest) Chandna Mohan  
Yogita Raghav Dr. Jarnail Singh Pratik Aggarwal (Guest)  
Shivam Sarawat Dr. Adarsh Kumar Lavesh Mishra (Guest)

01:26 PM 06-06-2022

Valedictory Ceremony - DAM2IC-22

01:20:48

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Kapoor Eni... Team Baba...  
TB LM  
Team Baba... Lavesh Mis...  
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Anshika Pra...

Kaushal Kumar Dr. Jarnail Singh Chandna Mohan  
Yogita Raghav Pooja Mehta Mah (Guest) Rishabh Arora  
Shivam Sarawat Team Baba GUS (Guest) DUEPAK 2002570007

01:25 PM 06-06-2022

Valedictory Ceremony- DAM21G-22

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**Attendees (71)** Mute all

**Video Feeds:**

- Rohit (Guest)
- Kaunhal Kumar
- Prof. Satish (Guest)

**Grid View:**

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**Attendee List:**

- PRIYANSHI SHARMA 19020...
- RG Rajni Gautam On hold
- R rana (Guest) On hold
- Rishabh Arora
- RM Ritesh GJU baba (Guest)
- RI rohtak 1 (Guest)
- Sahil Mehta
- SK Sarah Khan
- Santa
- SARTHAK CHAUDHARY 180...
- SD Shashank Deore (Guest)

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**BV**  
Bhuvanesh Vyara

**K.R. MANGALAM UNIVERSITY**  
WELCOME FOR  
AT  
CONFERENCE  
DESIGN AND APPLICATION OF  
NATIONAL MATERIALS  
FOR 2022

**Sarah Khan**

**Dr. Jarnail S...**  
**Arjun Kum...**

**Dr. Prabhak...**  
**Santa**

**MM**  
Mayur Mali

**Sahil Mehta**

**Dr. Vikas Goyat (Guest)**

**Kaushal Kumar**

**YINDEYU RAJANIAN S.S**

01:48 PM  
05-06-2022

DAM2IC-22- CSE TRACK

01:28:48

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**DK**  
dhanvanth kumar

**DG**  
Dr. Vikas G...

**SK**  
Sarah Khan

**MH**  
MD ZIA UL...

**KS**

**Participants**

Type a name

Share invite

**Presiders (0)**

**Mute all**

**KS** Kriti Sharma  
Organizer

**DK** dhanvanth kumar (Guest)  
Meeting guest

**DS** Dr. Jarnail Singh

**Dr. Prabhakar Bhandari**

**DG** Dr. Vikas Goyat (Guest)  
Meeting guest

**Kaushal Kumar**

**Sahil Mehta**

**SK** Sarah Khan

**Attendee (41)**

**11:07 AM**  
05-06-2022

**Prospection of fabrication techniques and material selection for transdermal drug delivery: An Update on clinical trials**

**DAM2IC 2022**

**Dhanvanth Kumar C\*, N Raghavendra Naveen\*, Prakash S Gundavar\*, B. Ramesh\*, Kiran Kumar G B\***

**Sri Adichunchanagiri College of Pharmacy, Adichunchanagiri University, B.G. Nagar, Karnataka 571448, India.**

**Introduction**

Several drugs have been delivered using Microspheres that include proteins, peptides, DNA, etc. Over the last 10 years, many methods are developed to produce Microspheres for the effective delivery of therapeutics. Transdermal delivery of drugs using microspheres is one of the recent applications in the current scenario and further, so much research is going on worldwide. Here we discuss the materials, methods, and different types of microspheres and their dimensions and mechanism of microspheres with current perspective.

**Types**

**Materials**

**Nondegradable materials**

- Metals
- Ceramic
- Synthetic polymer

**Degradable material**

- Natural
- Synthetic

**Clinical trials**

**Conclusion**

Over a decade microsphere drug delivery system shows better medication through the skin. A lot of research is going on in various institutions and industries also stepping forward for enhancing the technology. Thus collaboration and understanding between pharma companies and innovators lead to improvement and scale up this technology for efficient delivery of therapeutic compounds.

**Comparative efficacy of different approaches for transdermal delivery**

No.	Delivery method	Compound	Phase	Stability	Biocompatibility
1	JMN (Hypodermic Needle)	Insulin	Phase I	Stable	Good
2	Electroporation	Insulin	Phase I	Stable	Good
3	Electroporation	Insulin	Phase I	Stable	Good
4	Electroporation	Insulin	Phase I	Stable	Good

**Clinical trials**

Study	Phase	Compound	Delivery method	Stability	Biocompatibility
Study 1	Phase I	Insulin	Electroporation	Stable	Good
Study 2	Phase I	Insulin	Electroporation	Stable	Good
Study 3	Phase I	Insulin	Electroporation	Stable	Good

**References**

1. Dhanvanth Kumar C, N Raghavendra Naveen\*, Prakash S Gundavar\*, B. Ramesh\*, Kiran Kumar G B\*. Prospection of fabrication techniques and material selection for transdermal drug delivery: An Update on clinical trials. *Journal of Pharmaceutical Sciences*. 2022; 111(1): 1-10.
2. Dhanvanth Kumar C, N Raghavendra Naveen\*, Prakash S Gundavar\*, B. Ramesh\*, Kiran Kumar G B\*. Prospection of fabrication techniques and material selection for transdermal drug delivery: An Update on clinical trials. *Journal of Pharmaceutical Sciences*. 2022; 111(1): 1-10.
3. Dhanvanth Kumar C, N Raghavendra Naveen\*, Prakash S Gundavar\*, B. Ramesh\*, Kiran Kumar G B\*. Prospection of fabrication techniques and material selection for transdermal drug delivery: An Update on clinical trials. *Journal of Pharmaceutical Sciences*. 2022; 111(1): 1-10.

DAM2IC-22- CSE TRACK

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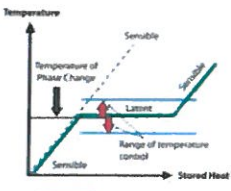
Attendees (37) Mute all

AS MG VK AP +41 KS

ADITYA KUMAR SINGH Manglesh K. Vivek Kuma... Aman Kum...

### Introduction

- 1) Thermal energy storage (TES) is now a days presented as one of the most feasible solutions in achieving energy savings and environmentally correct behaviors.
- 2) There are various method of heat storage some of them are

(1) Types of thermal energy storage

Fig. (a) Heating effect on PCM

ADITYA KUMAR SINGH (Guest)

AG Aditya Gupta (Guest) Meeting guest

AP Aman Kumar Pal External

AK Arvind Kumar

Ashwani Kumar

BK B pavan kumar (Guest) Meeting guest

DP Dinesh Pandit (Guest) Meeting guest

DB dr Ranjit Bindal (Guest) Meeting guest

GH GJU Hisar (Guest) Meeting guest

GH GJU Hisar (Baba) (Guest) Meeting guest

GH GJU Hisar (Baba) (Guest) Meeting guest

HK harsh kumar (Guest) Meeting guest

11:55 AM 05-06-2022