

BRIEF REPORT ON INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN ENERGY MATERIALS AND ITS APPLICATIONS (ICRAEMA – 23)

30th – 31st May, 2023

Organized by the Department of Physics, Pachhunga University College, Aizawl, Mizoram

Funded by the Mizoram University

Theme: Energy Materials

Scope:

- (i) Batteries, Supercapacitors, Solid State Electrolyte and Electrode
- (ii) Energy Materials for reduction of greenhouse gases
- (iii) Energy Harvesting Materials and Technology
- (iv) Piezoelectric, Thermoelectric and Dielectric Materials
- (v) Energy Materials for Fuel Cells
- (vi) Hydrogen Energy, Production and Storage
- (vii) Energy Materials for Solar Cell, Superconductor, Topological Insulators
- (viii) Water splitting, Photocatalysis and Electrocatalysis
- (ix) Advanced Materials for Optoelectronics and spintronics

ICRAEMA-23 was organised to commemorate the leadership of India in the Group of Twenty (G-20) from 1st December 2022 to 30th November 2023. It was a two-day program in which **seven (7) resource persons** from various reputed institutes like IIT Guwahati, IIT Gandhinagar, Tribhuvan University Nepal, Chula University Thailand, and West Texas A&M University, USA delivered keynotes and invited talks on the energy related recent researches. There were **29 presenters (oral and poster)** from Mizoram, Assam and Meghalaya who gave oral and poster presentations. Besides, paper presenters there were about **40 participants (mostly UG, PG, Research Scholars and Faculty members)**, who registered for the programme. The time slot for Keynote talk was 45 min, invited talk was 30 min and oral presentation was 10+5 min.

On the first day 30th May 2023, the ICRAEMA-23 started at 10 AM with a short inaugural program, in which the patron of the conference Prof. H. Lalthanzara, Principal, Pachhunga University College was felicitated by the head of the department Dr. Lalhriatuzuala. Other dignitaries such as Prof. R. C. Tiwari, senior professor from Mizoram University, Prof. Subhradip Ghosh from IIT Guwahati, and Prof. Soorathep Kheawhom from Chulalongkorn University, Bangkok, Thailand were felicitated by the patron. The inaugural program was concluded by a short speech from the patron, the HOD and vote of thanks from Dr. Y. Rangeela Devi.

After the inaugural function, there was a short 15 minutes tea break, which was followed by a keynote talk on “Understanding Energy Materials by harnessing computers energy”. The keynote speaker Prof. Subhradip Ghosh, Dept. of Physics, IIT Guwahati highlighted the importance of green energy and extraction of green energy from the solid-state materials using density functional theory (DFT). Keynote speech was followed by an invited talk on “Electronic properties of Kagome materials (Cs, Rb, K)V₃Sb₅ from experiment” delivered by Dr. K. Shrestha, from West Texas A&M University, USA. After that there was 4 oral presentations, with which the first technical session was concluded.

The afternoon technical session was resumed after the lunch break. In the first session, Dr. Utpal Sarkar from the Department of Physics, Assam University, Silchar delivered his invited talk on “sp² Hybridized Carbon Network for Energy Applications”. This was followed by 4 oral, and 6 poster presentations. The first day program was concluded after having tea and snacks.

On the second day 31st May 2023, the program start at 10 AM with keynote speech from Prof. Soorathep Kheawhom, Chulalongkorn University, Bangkok, Thailand. He started by giving a virtual tour of his university campus. He, then gave a keynote talk on the topic titled “The role of water in zinc-ion battery having dimethyl sulfoxide cathode”. He also shared valuable information to students and scholars regarding admission and scholarship opportunities in his university for MS, Ph.D., and Post doc positions. He also invited faculties for international-exchange programs. There was a tea break for 15 mins. After that the department alumni Dr. Madhav Prasad Ghimire from Tribhuvan University, Nepal delivered an invited talk on “Topological Properties in Kagome Metals.” This was followed by 4 oral presentations and lunch break for 45 min.

The last technical session was resumed with an invited talk on “Thermal management in electrical vehicle and electronics” delivered by Dr. Amit Arora, Head, Department of Materials Engineering, IIT Gandhinagar. The talk was followed by another invited talk lecture from Dr. Krista Roluahpuia, Department of Physics, IIT Gandhinagar on the topic titled “Molecular beam epitaxy of Group IV heterostructures on Sapphire platform.” After invited talk, there was 15 min tea break, which was followed by 6 oral presentations.

After the technical sessions were over, there was a short Valedictory function. Dr. Dibya P. Rai, Secretary, ICRAEMA-23 gave a brief report and conducted Prize distribution for best oral and poster presentations. The programme concluded with vote of thanks from Dr. Shivraj Gurung, Head, Department of Geophysics, Pachhunga University College. This was followed by sumptuous conference dinner served at the college canteen.

SOME OF THE PICTURES TAKEN DURING CONFERENCE









FINANCIAL REPORT

I. Sanctioned amount by the Mizoram University

- Rs. 2, 00, 000/-

II. Statement of Expenditure:

Voucher No.	Particulars	Rate (Rs.)	Qty	Amount (Rs.)	Remarks
1	Double sided tape, CD writer, Drawing Pin			155.00	
2	Badge for participants and small banner			2500.00	
3	File cover, smothwrite, note pad, etc			2200.00	
4	Official badge	60	6	360.00	
5	Certificate printing	35	68	2380.00	
6	Souvenir items from Hnamchhantu			6880.00	
7	Additional souvenir item from Hnamchhantu			350.00	
8	File for chair, speakers, and participants			825.00	
9	Banner		3	3000.00	
10	HDMI Cable	450	1	450.00	
11	Partial Travel funding/honorarium of keynote and invited speakers			58000.00	Since, we do not have enough funding to finance their travel, the organizing committee decided to give at least partial funding of their travel expenses as honorarium. The invited speakers also accepted and understood our financial constraint
12	Lunch and dinner bill from canteen			45690.00	For two days. Besides conference dinner, on the first day, in order to have interactions and discussions with our invited speakers, faculty of the department had dinner with them, which resulted in discussion of research collaborations and other aspects
13	Tea and snacks bill from Canteen			6180.00	For two days
14	Nehru Coat for keynote speakers + Prof. Amit Arora	1800	3	5400.00	Since we do not have sufficient fund, only keynote speakers and IIT Gandhinagar faculty were given
15	Hiring charge for Taxi	1500	3	4500.00	Taxi was hired three times – on two occasions, it was to drop our resource persons to Airport and on another occasion, it was to drop participants from outside the state. For other occasions, the teaching faculty contributed their vehicles
16	Esquire Hotel Bill		6	64963.00	
TOTAL				203833.00	

Sl. No	Name	Affiliation	Signature
1	Nongnaithe Hrejet. Singh	Chemistry, department Mizoram University	NHS
2	Jay Prakash Royan	Chemistry, PUC	Roy
3	Debolina Paul	Dept. of Physics, AUS	Paul
4	Sadhana Barman	" "	SBarman
5	Taniya Paul.	Dept. of Physics, AUS	TPaul
6	Manoj Bora	Dept. of Physics, AUS	Manoj
7	Dr. N. Swajikumar Singh	Dept. of Physics, PUC	Dr. N. S.
8	Dr. Lalmanjira Vanthawin	Dept. of Physics, PUC	Dr. L.
9	SOORATHEP KHEAWHOM	Chulalongkorn University	Soorathep
10	Utpal Sarker Mrigankadeep	Assam University, Silchar Mizoram University	Utpal Sarker
12	Dr. Shovika Ram Bhandari	Tribhuvan University, Nepal	Shovika
13	Dr. Ch. Victory Devi	PUC, Chu. Dept.	Ch. Victory
14	Dr. Remuathluanga Hramk.	PUC Botany Dept.	Remuathluanga
15	Dr. P. Vamlakhlama	PUC Botany Dept.	P. Vamlakhlama
16	Lalmanjira Fleu	PUC Geophysics	Lalmanjira
17	Sushil Joshi	NIT Mizoram	Sushil
18	H. Lalringela	MZU	H. Lalringela
19	Nehal Kiza	Dept. of Physics	Nehal
20	Zosanghana	Dept. of Geophysics.	Zosanghana
21	Dr. Vamlakhlama Ralte	Dept. of Botany	Dr. Vamlakhlama
22	Lalmanjira	Dept. of Chemistry	Lalmanjira
23	Lalmanjira	Dept. of Physics, MZU	Lalmanjira
24	Lalmanjira Khianye	Dept. of Physics, MZU	Lalmanjira
25	B. Zosanghana	Dept. of Physics, PUC	B. Zosanghana
26	Lalmanjira	Dept. of Geophysics	Lalmanjira
27	Vamlakhlama Thangi	" "	Vamlakhlama
28	Marissa C. Hangshing	" "	Marissa
29	C. V. L. Remuathluanga	Dept. of Physics	C. V. L. Remuathluanga
30	Benjamin	" "	Benjamin
31	Lalmanjira	" "	Lalmanjira
32	Jason Lalrohluanga	Dept. of Physics	Jason
33	B. dason Chakora	Dept. of Physics	B. dason
34	Aditya Kumar	Dept. of Biotech	Aditya

Sl. No	Name	Affiliation	Signature
35.	Josef Lalhouaitlonga	Dept of Physics (M7U)	
36.	Lalnunfauia	"	
37.	Lalnungmami Colmy	"	
38.	D. Mahesh Ram	St. Edmund's College, Shillong	
39.	Aniket Chettri	"	
31 st May 2023		(2 nd Day).	
40.	Lalthansarga	Dept of Geophysics (PUC)	
41.	Jephtha Lalnunghaihuak	Dept of Geophysics (PUC)	
42.	Malsawmlhanga	Dept. of Geophysics (PUC)	
43.	N. Harjit. Singh	Dept of Chemistry (M2U)	
44.	Brajendra Singh Shastri	Dept. of Chemistry (M2U)	
45.	Vandellummatkima	Dept. of Geophysics (PUC)	
46.	Lallawmzuata	" " " (PUC)	
47.	C Lalnunpue	Dept of Geophysics (PUC)	
48.	Alex Lalhelanawma	" " " "	
49.	Lalnmatdiki	" " " "	
50.	Lalramunkini	"	
51.	Josef Lalhouaitlonga	Dept of Physics (M7U)	
52.	Lalnunpuea Khianste	Dept " "	
53.	Ananta Sharma Sahal	Dept. of Geophysics	
54.	Vomlalsinchiromi	"	
55.	C. Zethorsanga	Dept. of Physics	
56.	Faiz Imam	Dept of Biotech	
57.	Anish Gupta	Dept of History	
58.	Ridha	" " Biotech	
59.	Bhanu Chettri	Dept. of Physics	
60.	Benedict Lalndiana	"	
61.	Lalrein Kinca	"	
62.	Doc. Lalnuanchhona	"	
63.	Lalhemkima	"	
64.	Celestine Lalnungmaura		
65.	S Thasana Chuanu		