



A Report on Guest Lecture
“Perovskite Power: Unleashing the Future of Energy Applications”
Organized by Department of Chemistry
14.06.2024



Report Submitted by: Dr. Sanoop P, Asst. Prof., Dept. of Chemistry, MITS

Resource Person Details: Dr. Muhammed Haris P U, Post-Doctoral Researcher at the KFUPM, Saudi Arabia

Attendees: 60 students of B. Tech 1st year ECE-E section & all faculty members from the Department of Chemistry

Mode of Conduct: Online

Report Received on 18.06.2024

The event was started by Dr. Sanoop P, Assistant Professor, Department of Chemistry, Madanapalle Institute of Technology & Science (MITS) at 11.10 AM followed by the welcome address to the gatherings by Dr. Renjith Bhaskaran, HoD, Department of Chemistry, MITS, Madanapalle.

Further, Vice Principal Academics Prof. P. Ramanathan of MITS provided the inaugural address. The resource person of the event **Dr. Muhammed Haris P U**, Post-Doctoral Researcher at the KFUPM, Saudi Arabia, joined through online. The academic profile of Dr. Muhammed Haris P U was being introduced to the gatherings by Dr. Sanoop P, Assistant Professor, Department. of Chemistry, MITS, Madanapalle.

Dr. Muhammed Haris P U started the lecture by extending his sincere thanks to the participants, organizing members, HoD - Chemistry, Principal, Vice Principal, and Management of MITS, Madanapalle for allowing him to share his knowledge and experience in perovskite solar cells and allied branches. In the introductory part of his lecture, he defined perovskites scientifically and offered a concise overview of these materials. He also discussed the various applications of perovskites in fields such as batteries, fuel cells, and solar cells, with a particular focus on their use in solar cell technology. Additionally, he provided a brief explanation of the working principles of solar cells and highlighted how perovskite materials enhance their various properties.

In the next part of the lecture, he delved into the preparation of perovskite-based solar cells, emphasizing the comparison between these and commercially available silicon-based solar cells in terms of efficiency and production cost. He detailed various instrumentation techniques used for fabricating perovskite solar cells, such as physical vapor deposition, spin coating, and electro-spinning. He also presented images of perovskite solar cells fabricated in his lab and showed a video demonstrating their fabrication process.

In the final part of his presentation, he discussed significant results from his Ph.D. research on perovskite solar cells, focusing on the preparation strategies using various source materials and their applications in solar cells.

The lecture was then followed by a question & answer session. The event was concluded at 12.10 PM by a vote of thanks given by Dr. Arun Babu, Assistant Professor, Department of Chemistry, MITS, Madanapalle.

Program Outcome

The Guest lecture on "Perovskite Power: Unleashing the Future of Energy Applications" aimed to enrich first-year ECE engineering students with cutting-edge knowledge in renewable energy technologies. By the end of the program, students had a comprehensive understanding of the fundamental principles and recent advancements in perovskite solar cells, including their structure, operation, and potential for high-efficiency energy conversion. The lecture highlighted the significance of perovskite materials in the context of sustainable energy solutions, fostering an appreciation for innovative research and development in the field. Furthermore, students gained insights into the challenges and future directions of perovskite solar cell technology, equipping them with the knowledge to contribute to advancements in renewable energy and encouraging them to consider careers or further studies in this impactful area.