



Department of Electronics Engineering
and
IETE Bhopal Chapter

Expert Talk
on
Next-Generation Electromagnetic Techniques for Absorber Design
by
Dr. Ravi Yadav

(11 January 2025)

An **Expert Talk** on “Next-Generation Electromagnetic Techniques for Absorber Design” organized by the **IETE Bhopal Chapter** in collaboration with the **Department of Electronics Engineering, MITS Gwalior**, on **11 January 2025**.

The event began with a **welcome address** by **Student Coordinator Soumya Dubey**. Coordinators **Soumya Dubey** and **Medhavi Agrawal** then introduced **Dr. Ravi Yadav** to the audience and invited her to commence the session.

Dr. Ravi Yadav is a **Research Scientist** at the Engineering and Optimization Centre, **Reykjavik University**, Iceland. Prior to this, he served as a Postdoctoral Researcher at the Modern Electromagnetic Theory and Applications (META) Lab in Technion – Israel Institute of Technology, Haifa, Israel. He is working on beam steering Metasurfaces and Metagratings. His research interests also include the characterization of electromagnetic (EM) composites and nanocomposites, EM mixing models, electromagnetic shielding, machine learning, hybrid optimization strategies, frequency-selective surfaces, and e-waste management.

He has published his work in many reputed international journals such as Nature: Scientific Reports, IEEE Transactions on Electromagnetic Compatibility, IEEE Transactions on Dielectrics and Electrical Insulation, IEEE Transactions on Magnetics, IEEE/TMS Journal of Electronic Materials, Journal of applied physics (JAP), IEEE Magnetics Letters along with patents and book chapters.

The session concluded with a **vote of thanks** delivered by **Dr. Himanshu Singh**.

This activity was coordinated by **Dr. Himanshu Singh** under the guidance of **Dr. Pramod Kumar Singhal** (Dean, Quality Assurance) and **Dr. Vandana Vikas Thakare** (Head of the Department, Electronics Engineering).

In total, more than 50 participants have attended this talk through Google Meet. The event successfully fostered curiosity and enthusiasm for microwave designing among the participants, making it a memorable and enriching experience.

GLIMPSE OF THE EXPERT TALK by Dr. Ravi Yadav

**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**
Deemed University
(Declared under Distinct Category by Ministry of Education, Government of India)
NAAC ACCREDITED WITH A++ GRADE



**Department Of Electronics Engineering
&
IETE Bhopal Centre
Presents**



EXPERT TALK

TOPIC:
Next-Generation
Electromagnetic Techniques
for Absorber Design

Dr. Ravi Yadav
Research Scientist,
Reykjavik University, Iceland

 **SATURDAY
11 January 2025**

 **12:00 PM - 01.00 PM**

 **Online Mode**

 **E-CERTIFICATES
FOR ALL**

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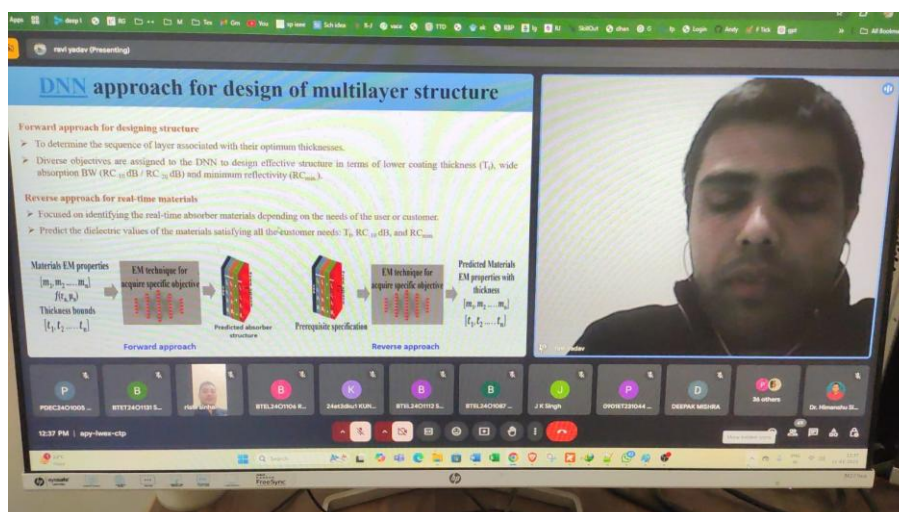


Dr. Ravi Yadav is a Research Scientist at the Engineering & Optimization Centre, Reykjavik University, Iceland. Prior to this, he served as a Postdoctoral Researcher at the Modern Electromagnetic Theory and Applications (META) Lab in Technion – Israel Institute of Technology, Israel. He is working on beam steering Metasurfaces & Metagratings. His research interests also include the characterization of electromagnetic (EM) composites & nanocomposites, EM mixing models, EM shielding, machine learning, hybrid optimization strategies, frequency-selective surfaces, & e-waste management.

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Student Coordinators: Saumya Dubey : 9244309594
Medhavi Agrawal : 6299317545

Dr. Vandana Vikas Thakare
HoD,
Electronics Engineering Department



The screenshot shows a Zoom meeting interface. On the left, a presentation slide titled "DNN approach for design of multilayer structure" is displayed. The slide content includes:

- Forward approach for designing structure**
 - To determine the sequence of layer associated with their optimum thicknesses.
 - Diverse objectives are assigned to the DNN to design effective structure in terms of lower coating thickness (T_c), wide absorption BW ($RC_{10\text{ dB}} / RC_{20\text{ dB}}$) and minimum reflectivity (RC_{min}).
- Reverse approach for real-time materials**
 - Focused on identifying the real-time absorber materials depending on the needs of the user or customer.
 - Predict the dielectric values of the materials satisfying all the customer needs: T_c , $RC_{10\text{ dB}}$ and RC_{min} .

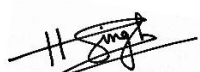
The slide also features a diagram illustrating the workflow:

Materials EM properties ($\epsilon_r, \epsilon_i, \mu_r, \mu_i$) and Thickness layers (t_1, t_2, \dots, t_n) are input into the **Forward approach** to produce a **Predicted absorber structure**. This structure is then used in the **Reverse approach** to produce **Predicted Materials EM properties with thickness** ($\epsilon_r, \epsilon_i, \mu_r, \mu_i$).

On the right side of the Zoom window, a video feed of Dr. Ravi Yadav is visible. The bottom of the window shows the Zoom toolbar with various icons for chat, mute, video, etc., and a list of participants at the bottom.

List of Attendees

1	ANKITSAHU	39	Piyush Shrivastava
2	Ankush Kumar	40	Nairitya Gupta
3	Rashiya Qureshi	41	Rajat Sadana
4	Lakshya pachauri	42	Divya Nimje
5	Rohit Rawat	43	Sourabh Patidar
6	Palak shivhare	44	Harsh Malviya
7	Satyam Gupta	45	ADITYA VERMA
8	Sandeep Singh Gurjar	46	Rajditya Singh Rajput
9	Shruti Vishwakarma	47	ABHAY YADAV
10	Anugrah mishra	48	ASMIT DUBEY
11	Suhani tomar	49	Prince Gupta
12	Vikrant Singh Rajput	50	Tilak Rajak
13	Rahul Jadhav	51	SHIVAM PARASHAR
14	Raman Sharma	52	Nitya Kaurav
15	Shubham patel	53	Archit jha
16	Prakriti Krishna Pal	54	Gaurav Singh Chauhan
17	Deepankar Singh Rawat	55	Rudra Sharma
18	Khushi Dhakad	56	Sambhav Sharma
19	LOKENDRA PRATAP SINGH	57	TANISHQ AGRAWAL
20	ANKIT SINGH PARIHAR	58	Khushi Sinha
21	Shreyansh Jain	59	Tarun Kushwaha
22	Ritik Jain	60	Bhumika Rawat
23	Vedika Singh	61	Ayush Rahate
24	Monika Sahu	62	Hitesh jhala
25	Rachit Jain	63	Ratnesh Asati
26	M sainath	64	RITIK KUSHWAHA
27	HONEY KUSHWAH	65	Swati urmalia
28	Name - Rajarshi Paul	66	Supriya Gautam
29	Srijani Hati	67	Supriya Gautam
30	Vansh Vishnoi	68	Ajay Dhakad
31	Payal Rani	69	Patel Somesh Hariram
32	DEEPANSHU YADAV	70	Aditi Patel
33	Sayani Bindai	71	Ankit shukla
34	LALITHENDRA KURRA	72	Shivam Parashar
35	Dr. Mrs. Yogita Nafde	73	NAVDEEP SHAKYA
36	Rishabh Sikarwar	74	Diwakar Sharma
37	Kunal Verma	75	Armaan Patel
38	Soham Subhedar		



Dr. HIMANSHU SINGH



Dr. Vandana Vikas Thakare
Head of the Department