



ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY (A)



Approved by AICTE, New Delhi * Permanently Affiliated to JNTUK, Kakinada
Accredited by NBA* Accredited by NAAC A+ Grade with CGPA of 3.40
Recognized by UGC Under Sections 2(f) and 12(B) of the UGC Act, 1956
Aditya Nagar, ADB Road, Surampalem, Gandepalli Mandal, Kakinada District - 533437, A.P
Ph. 99591 76665, Email: office@acet.ac.in, www.acet.ac.in

Report

On

2- Day National Level Symposium

"Embracing the Future: AI-Powered 5G/6G Antenna Design"

Date: 3rd to 4th May 2024

Sponsored by

Science and Engineering Research Board (SERB)

Department of Science & Technology (DST), Govt. of India

Organized by

Department of Electronics & Communication Engineering



Convenor

Dr. Dola Sanjay

Principal & Professor

ACET, Surampalem

Co-Convenor

Dr.R.V.V. Krishna

Professor & HOD ECE

ACET, Surampalem



"Embracing the Future: AI-Powered 5G/6G Antenna Design"

Science and Engineering Research Board (SERB), Department of Science & Technology (DST), Govt. of India had approved to conduct a 2 Day National Level Symposium titled "Embracing the Future: AI-Powered 5G/6G Antenna Design" from 3rd to 4th May 2024, organized by the Department of Electronics and Communication Engineering at Aditya College of Engineering and Technology (ACET), Surampalem.

ABOUT SERB

The Science and Engineering Research Board (SERB) is a statutory body established through an Act of Parliament. Promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected there with or incidental there to are the primary and distinctive mandate of the Board.

ABOUT ACET

The College is situated in an eco-friendly area of 180 acres with thick greenery at Surampalem, Gandepalli Mandal, East Godavari District, Andhra Pradesh. The dreams of its bounding took shape in 2004 in the form of Sri Sai Aditya Institute of Science and Technology which is renamed as Aditya College of Engineering and Technology (ACET) with approval of AICTE in the aegis of Sarojini Educational Society, Kakinada and permanently affiliated to JNTUK Kakinada. It is accredited by National Assessment and Accreditation Council (NAAC) with 'A+' Grade with 3.40 CGPA and accredited by NBA. The Aditya College of Engineering and Technology is Autonomous and offers 8 UG and 4 PG programmes in Engineering, MCA, MBA with 15 years of rich standing in the educational era.

ABOUT SYMPOSIUM

The SERB-sponsored symposium titled "Embracing the Future: AI-Powered 5G/6G Antenna Design" aspires to offer a comprehensive platform for researchers, engineers, industry professionals, and academics to delve into and discuss the latest advancements, challenges, and opportunities in AI-based techniques and implementations for 5G/6G antenna design. Through keynote presentations, technical sessions, and panel discussions, the symposium seeks to inspire and equip participants to harness the potential of AI in shaping the future of wireless communication. The event features six technical sessions spread over two days, each dedicated to various aspects of AI-powered antenna design and related technologies.



Event Participants:

The event registered 180 participants from both the hosting institution and other esteemed educational institutions nationwide. Among these, 50 faculty members were shortlisted and actively participated in the two-day event.

Day 1: May 3, 2024

Inauguration (10:00 AM - 10:20 AM)

Aditya College of Engineering & Technology organized an elegant inaugural ceremony for the two-day National Symposium on “Embracing the Future: AI-Powered 5G/6G Antenna Design” from May 3rd to 4th, 2024, held in the Ajivika Conference Hall at ACET. The event commenced at 10:00 AM.

Dr. Sandeep Kumar, Assistant Professor in the ECE Department at NITK Surathkal, served as the Chief Guest, and Dr. S. Sarvendranadh, Assistant Professor in the ECE Department at IIT Tirupati, was the Guest of Honour.

The ceremony was presided over by Dr. Dola Sanjay S., Convenor and Principal of ACET. Other dignitaries present included Dr. R.V.V. Krishna, Co-Convenor and HOD of the ECE Department, Dr. M. Sreenivas Reddy, Director of Aditya Group of Engineering Colleges; Dr. A. Ramesh, Principal of ACOE; Dr. Ch.V. Raghavendran, Dean of Academics; and Dr. D. Kishore, Dean of Evaluation.

In his opening remarks, Dr. Sandeep Kumar highlighted the pivotal role of AI and machine learning in advancing 5G/6G technologies, setting an inspiring tone for the symposium participants. Dr. S. Sarvendranadh, the Guest of Honour, emphasized the importance of wireless technologies and provided insights into the evolution of 5G and the challenges in 6G antenna design.



Inaugural Speech by Dr. M. Sreenivasa Reddy, Director



Dr. Sandeep Kumar, Chief Guest



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Dr Sarvendranath Rimalapudi, Guest of Honour

High Tea & Snacks (10:20- 10:30)

Session 1: (10:30 AM - 12:30 PM)

Title : RF Transceivers: Design and Challenges along with Computational Intelligence Approach

Speaker : Dr. Sandeep Kumar, Assistant Professor, NITK, Surathkal

Session Chair : Dr R Anil Kumar, Associate Professor, ECE Dept, ACET

Dr. Sandeep Kumar elaborated on RF transceiver design, discussing trade-off parameters and key challenges in RF circuits. He shed light on computational intelligence techniques and the RF harvesting system.



Session 1: Dr Sandeep Kumar

Lunch Break

Participants enjoyed a lunch break from 12:30 PM to 1:15 PM, fostering networking and informal discussions.

Session 2: (1:15 PM - 2:45 PM)

Title : RF Transceivers: Design and Challenges along with Computational Intelligence Approach

Speaker : Dr. Sarvendranath Rimalapudi, IIT Tirupati.

Session Chair : Dr Tathababu Addepalli, Professor, ECE Dept., Aditya University

Dr. Sarvendranath Rimalapudi from IIT Tirupati discussed the evolution of cellular technology from 1G to 5G and the concept of reconfigurable intelligent surfaces. He further explored the domain of intelligent reflective surfaces, enhancing his presentation with animated videos.



Session 2: Dr Sarvendranath Rimalapudi

High Tea & Snacks (2:45- 2:50)

Session 3: (2:50 PM - 4:20 PM)

Title : Computer Aided Design Tools for 5G/6G Antenna Design

Speaker : Dr Jayendra Kumar Associate Professor, SENSE, VIT AP University, Amaravati

Session Chair : Dr USBK Mahalakshmi, Professor, ECE Dept, Aditya College of Engineering (A)

Dr. Jayendra Kumar from VIT AP University provided a comprehensive explanation of antenna fundamentals and the mathematical principles underlying antenna design. He also discussed various tools used in antenna design, such as CST Microwave Studio, FEKO, and HFSS. These insights are invaluable for emerging researchers in this field.



Session 3: Dr Jayendra Kumar



Day 2: May 4, 2024

Session 4 :(10:00 AM - 11:30 AM)

Title : Millimeter Wave MIMO Antennas: Design Requirements and Challenges

Speaker : Dr. Anumoy Ghosh, Assistant Professor, NIT Mizoram

Session Chair : Dr. G Rama Krishna, Professor & Dean (IQAC), ECE Dept., ACOE

Dr. Anumoy Ghosh from NIT Mizoram provided an excellent explanation of MIMO antennas, emphasizing their significance, benefits, and performance metrics such as ECC, DG, MEG, ME, and CCL. He also discussed the advantages and disadvantages of millimeter-wave technology, along with its design requirements.



Session 4: Dr. Anumoy Ghosh

High Tea & Snacks (10:20- 10:30)

Session 5: (11:40 AM - 1:15 PM)

Title : AI enabled MIMO Detection & Performance Applications for 5G and Beyond Case Studies

Speaker : Dr. Dola Sanjay S, Professor, ECE Department, ACET (A)

Session Chair : Dr P Narayana Rao, Associate Professor, ECE Dept, ACET (A)

Dr. Dola Sanjay S. from Aditya College of Engineering & Technology, Surampalem, inspired the participants by delving into various case studies showcasing AI-enabled MIMO detection and performance applications for 5G and future generations of wireless technology.



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Session 5: Dr. Dola Sanjay S

Lunch Break (1.15 PM -1.50 PM)

Session 6: (2:00 PM - 3:30 PM)

Title : Microstrip Antennas: Importance & Designing Techniques for different Applications

Speaker : Dr Rama Devi Kollisetty, Assistant Professor, University College of Engineering, JNTUK, Kakinada

Session Chair : Dr. Karna Vishnu Vardhana Reddy HoD & Associate Professor, ECE Dept, Aditya University

Dr. Rama Devi Kollisetty from JNTUK elaborated on antenna design, exploring various feeding systems such as inset feed and gap-coupled feed, along with their respective advantages and disadvantages. She also provided a detailed explanation of the antenna design process in CST.



Session 6: Dr Rama Devi Kollisetty

Valedictory (3:40 PM - 4:20 PM)

The SERB-sponsored symposium on “Embracing the Future: AI-Powered 5G/6G Antenna Design” concluded with a valedictory ceremony from 3:40 PM to 4:20 PM, encapsulating the key takeaways from the sessions and acknowledging the contributions of all speakers and participants. The valedictory session was presided by Dr.Dola Sanjay S, Principal , ACET (A). The coordinators of the Symposium Dr. P.Narayana Rao and Ms. Sneha.M.Joseph were appreciated and felicitated. The participants of the Symposium expressed their happiness toward the conduction of the Symposium and how they got benefitted from the symposium to update themselves and get motivated to continue their research in the field of 5G/6G Antenna Design

This closing event underscored the success of the symposium in meeting its ambitious objectives. It successfully brought together experts and participants to explore the latest advancements in AI and antenna design for next-generation wireless networks. The event facilitated knowledge exchange, inspired future research, and laid the groundwork for ongoing collaboration in this dynamic field with the following Key Presentations:

- Detailed discussions on AI-driven antenna design, computational intelligence approaches for RF transceivers, and challenges in millimeter wave MIMO antennas.
- Expert Insights: Eminent speakers from prestigious institutions such as IIT Kharagpur, NIT Surathkal, VIT-AP shared their expertise and insights.
- The event provided a platform for participants to network, collaborate, and exchange ideas with peers and experts in the field of networking opportunities.



Certificate Distribution



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Participants Group Photo

The symposium identified future research areas and opportunities for collaboration to advance AI-based 5G/6G future directions technologies.



ADITYA COLLEGE OF ENGINEERING & TECHNOLOGY(A) (An AUTONOMOUS Institution)

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Department of Electronics & Communication Engineering

Other Technical Details

(Financial Assistance to Seminar / Symposia)

Name of the event- Embracing the Future: AI-Powered 5G/6G Antenna Design

1. Broad details of estimated expenditure: (In Rupees)

- a) TA/DA for Young Scientists (Indian) = NA
- b) TA/DA for Senior Scientists (Indian) = $30000 \times 6 = 1,80,000/-$
- c) Pre-conference printing (Announcements, abstracts, etc.) = 20,000/-
- d) Publication of Proceedings = 7,000
- e) Stationery = $50 \times 200 = 10,000/-$
- f) Secretarial Assistance = NA
- g) Local Hospitality = 15,000/-
- h) Misc. = 10,000

Total = 2,52,000/-

2. Financial assistance required from SERB for the proposed event:

- a) Domestic Travel for Young and Senior Scientist : $30000 \times 6 = 1,80,000/-$
- b) Pre-Conference Printing (Announcements, abstracts etc.) = 20,000/-

Total = Rs 2,00,000/-

3. Details of income:

A. Revenue:

- a) Registration fees = $500 \times 50 = 25,000$

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b) Advertisement Charges = NA

c) Sponsorships = NA

B. Contribution by organizing Society/Institute = 70,000/-

C. Support from other funding agencies:

	Agency Name	Amount Requested ()	Amount Committed ()	Amount Received ()
a)	NA	NA	NA	NA
b)	NA	NA	NA	NA
c)	NA	NA	NA	NA
d)	NA	NA	NA	NA
	Total (C)	(a+b+c+d)	(a+b+c+d)	(a+b+c+d)
	Grand Total	(A+B+C)	(A+B+C)	(A+B+C)

4. Details of previous grant received by convener from SERB in past:

S. No.	Sanction order No.	Date	Name of Activity (Seminar / Conference / Workshop etc.)	Amount Sanctioned ()	UC Furnished to SERB (Y/N) . (If Y, attach UC copy)
1.	NA	NA	NA	NA	NA
2.	NA	NA	NA	NA	NA

5. Details of previous grant received by organizing Institute / University / College / Society from SERB in past:

S. No.	Sanction order No.	Date	Name of Event (Seminar / Conference / Workshop etc.)	Amount Sanctioned ()	UC Furnished to SERB (Y/N) (If Y, attach UC copy)
1.	NA	NA	NA	NA	NA
2.	NA	NA	NA	NA	NA

6. Details of participation in the event: NA

A. Foreign Delegates (Nos.): NA

B. Indian Delegates (Nos.): 50

a) Young Scientists (<35 years): 20

b) Senior Scientists: 30

7. List of participants (Confirmed

S. No.	Name of Participant	Affiliated Department and Institute (with full address)	Email Id	Contact No (Office & Mobile)
1.	M Ganesh Kumar	QIS College of Engineering & Technology (Autonomous), Pondur Road, vengamukkapalem, Ongole, Prakasam District - 523272	ganeshkumar.m@qiscet.edu.in	Office Contact 1: +91 92464 19542 Mobile Contact 1: +91 9290680257
2.	V Jaya Prakash	Sri Vasavi Engineering College (Autonomous) Pedatadepalli, Tadepalligudem - 534101 West Godavari Dist., Andhra Pradesh.	Jayaprakash0204@gmail.com	Office Contact 1: +91-8818-284355 Mobile Contact 1: +91 9949278544
3.	Y Venkata Lakshmaiah	Narasaraopeta Engineering College (Autonomous) Kotappakonda Road, Narasaraopet, Guntur, Andhra Pradesh 522601	Venkata.20phd7044@vitap.ac.in	Office Contact 1: 086472 39905 Mobile Contact 1: +91 7702026011
4.	Venkateswarao B	VIT-AP University (Beside AP Secretariat) Near Vijayawada, 522241	Venkateswar.23phd7039@vitap.ac.in	Office Contact 1: +0863 2370444 Mobile Contact 1:

		Andhra Pradesh.		9912977987
5.	K Sundar Srinivas	PSCMR College of Engineering & Technology, 7-3-6/1, Raghavareddy Street, Kothapeta, Vijayawada-520001 Andhra Pradesh	ksundarsrinivas@pscmr.ac.in	Office Contact 1: + +91-88852-19222 Mobile Contact 1: 9966640503
6.	Shivaji	Sri Vasavi Engineering College (Autonomous) Pedatadepalli, Tadepalligudem - 534 101 West Godavari Dist., Andhra Pradesh.	shivaji5679@gmail.com	Office Contact 1: +91-8818-284355 Mobile Contact 1: +91 9110355727
7.	Venkata Swamy T	VIT-AP University (Beside AP Secretariat) Near Vijayawada, 522241 Andhra Pradesh.	Venkateswamy.20phd7039@vitap.ac.in	Office Contact 1: +0863 2370444 Mobile Contact 1: 9502778200
8.	Ravi tella	VIT-AP University (Beside AP Secretariat) Near Vijayawada, 522241 Andhra Pradesh.	ravi.21phd7023@vitap.ac.in	Office Contact 1: +0863 2370444 Mobile Contact 1: 8500270536
9.	Satish Doddu	VIT-AP University (Beside AP Secretariat) Near Vijayawada, 522241 Andhra Pradesh.	satishkumar.20phd7110@vitap.ac.in	Office Contact 1: +0863 2370444 Mobile Contact 1: 8309756469
10.	Sandeep Godhade	VIT-AP University (Beside AP Secretariat) Near Vijayawada, 522241 Andhra Pradesh.	sandeep.23phd7020@vitap.ac.in	Office Contact 1: +0863 2370444 Mobile Contact 1: 9527715468
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Department of Electronics & Communication Engineering

SERB Sponsored Two Day National Symposium on "Embracing the Future: AI Powered 5G/6G Antenna Design"

3-4 May 2024

Budget Proposal

1. TA/ DA for Speakers:

- i) Dr Sarvendranath R , Asst Prof, IIT Tirupathi : : 10000+1500+1500+500 = 13500
- ii) Dr Sandeep Kumar , Asst prof , NIT Suratkal : 8000+7000+ 10000+1000 = 26000
- iii) Dr BS Rao, Asso Prof, Mahendra Univ, Hyd : 2000+2000+10000 +1000= 15000
- iv) Dr Anumoy Ghosh, Asst Prof, NIT Mizoram: 6100+2000+1500+8500+10000 = 28100
- v) Dr Puneet , Scientist , U R Rao Satellite Centre, Bang : 5000
- vi) Dr Jayendra , Asso Prof, VIT-AP : 10000+ 2500+2500=15000

Total: Rs 1,02,600

- 2. Kit: 500*80= 40000 (Bag +Scribbling Pad+ Pen+ Id card+ Schedule + brochure)
- 3. Certificates: 70*5= 350
- 4. Mementos : 15* 50= 750
- 5. Shawls = 6*250= 1500
- 6. Banners: 2000+500+500= 3000
- 7. Lunch = 70*2*200=28000
- 8. High Tea =70*4*50=14000
- 9. Proceedings Printing = 15000

Total Expenditure = Rs 2,05,200



Signature of Co-Convenor



Signature of Convenor