

**KONERU LAKSHMAIAH EDUCATION FOUNDATION
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**Three days Faculty Development Programme on
“Recent Advances In Wireless Systems and Emerging Technologies”**

**Organized by Communication System Research Group(CSRG),
Department of ECE, KLEF in Association with IETE-Vijayawada chapter**



September 28, 2021 to September 30, 2021

Program Chair : Dr. M. Suman, Professor & Head, ECE, KLEF
Dr.M.Goutham, Professor & Head, ECE, KLH

Research Group Head : Dr. K.S.Ramesh, Professor, ECE, KLEF

Conveners : Dr.S.Nagendram, Associate Professor, ECE, KLEF
Dr. Arjuna Muduli, Associate Professor, ECE, KLEF

Meeting Link:

<https://kluniversity.webex.com/kluniversity/j.php?MTID=mcb56498c1f62d4054723b17835cb8d01>

KLEF Electronics & Communication Engineering

Organized by Communication System Research Group (CSRG)

Three days FDP on
RECENT ADVANCES IN WIRELESS SYSTEMS AND EMERGING TECHNOLOGIES

28th - 30th SEPTEMBER 2021

SPEAKERS

Registration link :
<https://forms.gle/4nr735TBtwsfLfdh9>

Chairpersons
Dr. M. Suman
Professor and Head, ECE, KLVZA
Dr. M. Goutham
Professor and Head, ECE, KLH

Research Group Head
Dr. K. S. Ramesh
Professor - ECE

Conveners
Dr. S. Nagendram
Assoc. Professor, ECE
+91 817 981 1623
E-mail id: nagendram@kluniversity.in

Dr. Arjuna Muduli
Assoc. Professor, ECE
+91 817 981 1623

Dr. Rajkishor Kumar
Assistant Professor, Senior Grade-1
Department of Communication Engineering
School of Electronics Engineering (SENSE)
Vellore Institute of Technology (VIT)
Vellore - 63204, Tamil Nadu.

Date : 28th September 2021
Time : 10.30 AM to 12.30 PM

Topic
Antenna in Biomedical Applications and Artificial Intelligence

Dr. Rajanikanta Swain
Senior HR engineer (Antenna R&D)
VCON Technologies Pvt Ltd

Date : 29th September 2021
Time : 2.00 PM to 4.00 PM

Topic
Design considerations and industrial realizations on Meta-Antennas

Dr. Tanmaya Kumar Das
Associate Professor
CVMR Group, Global University Odisha

Date : 30th September 2021
Time : 2.00 PM to 4.00 PM

Topic
RFID Antennas for Biomedical Applications

DAY-1:

DATE:28-9-2021

Time: 10.30AM TO 12.30PM

Resource Person: Dr.Rajkishor Kumar
Assistant Professor
Vellore Institute of Technology
Vellore, Tamil Nadu
E-Mail: Rajkishorkumar88@gmail.com
Mobile No: 8271976691

Topic: Antenna in Biomedical Applications

The screenshot shows a Cisco Webex meeting window. The main content area displays a presentation slide titled "Three day online FDP on Recent Advances in Wireless Systems and Emerging Technologies". The slide is organized by Koneru Lakshmaiah Education Foundation (K L University) Guntur, in association with IETE-Vijayawada chapter. The topic is "Antenna for the Biomedical Applications". The presenter is Dr. Rajkishor Kumar (Ph.D. | IIT, Dhanbad), Assistant Professor Senior Grade-I, Department of Communication Engineering, School of Electronics Engineering (SENSE), Vellore Institute of Technology (VIT), Vellore-632014, Tamil Nadu, India. His email is rajkishorkumar88@gmail.com / rajkishor.kumar@vit.ac.in and his personal website is <https://sites.google.com/site/rajkishormicrowave>. The slide also features logos for K L University, VIT, and a diagram of a person with a signal wave.

The participant list on the right shows 13 participants:

- John Philip 5137
- Dr. Joshitha C
- RAJKISHOR KUMAR (Host)
- 1286 Dr.S.Nagendram
- John Philip 5137
- 1286 Dr.S.Nagendram
- RAJKISHOR KUMAR
- 1286-Dr.S.Nagendram
- 3621 Dr.P.Pardhasara...
- 5368_ECE_P. Syam Sundar
- 5406 Rooban
- 5884 Dr. Arjuna Muduli
- Dr Joshitha C
- Dr S Koteswara Rao ECE 3843
- Dr. Jyothi N.M
- Dr. K. C. Ramach

The bottom of the window shows the Windows taskbar with the date 28-09-2021 and time 10:45.

AutoSave On Research Meeting VKM JP SK Mi... Search

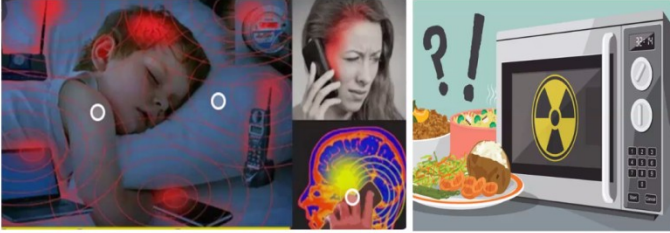
File Home Insert Draw Design Layout References Mailings Review View Help

Cisco Webex Meetings | Meeting Info | Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Help

John Philip S137 Me Dr Joshitha C RAJKISHOR KUMAR 1286 Dr.S.Nagendram Host

DISADVANTAGES OF MICROWAVE IRRADIATION



Unmute Start video Share ...

Participants (13)

Search

- JS John Philip S137 Me
- 1D 1286 Dr.S.Nagendram Host
- RK RAJKISHOR KUMAR
- 1 1286-Dr.S.Nagendram
- 3D 3621 Dr.P.Pardhasara...
- 5S 5368_ECE_P. Syam Sundar
- 5R 5406 Rooban
- 5M 5884 Dr. Arjuna Muduli
- DC Dr Joshitha C
- D3 Dr S Koteswara Rao ECE 3843
- DN Dr. Jyothi N.M
- DE Dr. Kiran Kumar E

Participants Chat ...

Page 2 of 2 110 words English (United States)

Type here to search

10:48 28-09-2021

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John Philip 5137 Dr. Joshitha C **RAJISHOR KUMAR** 1286 Dr.S.Nagendram

Participants (18)

Search

JS John Philip 5137 Me

ID 1286 Dr.S.Nagendram Host

RK RAJISHOR KUMAR

1R 180040208 NANDYA...

1B 180040295 Gowrav Krishna Boy...

3D 3621 Dr.P.Pardhasara...

4 4966-Dr.N.Prabakaran-ECE

5K 5101 K T P S Kumar

5S 5368_ECE_P. Syam Sundar

5R 5406 Rooban

5M 5884 Dr. Arjuna Muduli

CBM7

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Participants Chat

INTRODUCTION-IMPLANTABLE SYSTEM

Page 3 of 3 0 words English (India)

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File Home Insert Draw Design Layout References Mailings Review View Help

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File Edit Share View Audio & Video Participant Meeting Help

John Philip 5137 Dr. Joshitha C **RAJISHOR KUMAR** 1286 Dr.S.Nagendram

Participants (19)

Search

JS John Philip 5137 Me

ID 1286 Dr.S.Nagendram Host

RK RAJISHOR KUMAR

1 1286-Dr.S.Nagendram

1B 180040295 Gowrav Krishna Boy...

1 180040598-G.Rajakumari

3I 3028 Ms.N.Durga Indi...

3D 3621 Dr.P.Pardhasara...

4 4966-Dr.N.Prabakaran-ECE

5K 5101 K T P S Kumar

5S 5368_ECE_P. Syam Sundar

5M 5884 Dr. Arjuna Muduli

Unmute Start video Share

Participants Chat

INTRODUCTION-A WIRELESS SYSTEM-DATA TELEMTRY

Viewing RAJISHOR KUMAR...

Page 3 of 3 0 words English (United States)

Day-2

Date: 29-9-2021

Time: 2:00 To 4:00PM

Resource Person: Dr Rajanikanta Swain

Senior RF engineer (Antenna R&D)

VVDN Technologies Pvt Ltd

Bangalore


E-Mail: rajanikanta.swain@vvdntech.in

Cisco Webex Meetings | Meeting Info | Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

5884 Dr. Arjuna Muduli
Cohost, me

Dr. Rajanikanta Swain



1286-Dr.S.Nagendram

5101 K T P S Kumar

5406 Rooban

Layout

Participants (11)

Q Search

SM 5884 Dr. Arjun...
Cohost, me

C CR054
Host

DS Dr. Rajanikanta Swain

1 1286-Dr.S.Nagendram

5K 5101 K T P S Kumar

SR 5406 Rooban

9K 928 Dr.K.Ch.Sri Kavya

DR D. Sreenivasa Rao

D3 Dr S Koteswara Rao ECE 3843

D Dr.S.Sunithamani

Mute all Unmute all

Tinfoil-paper Polarization
1898, J. C. Bose

Chiral Medium
1920, K. F. Linddman

Artificial Dielectrics

Light Lens
1949, W. E. Kock

Artificial Plasma
1962, W. Rotman

MetaMaterial
achieve advan

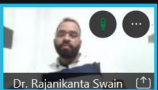
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Cisco Webex Meetings | Meeting Info | Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

5884 Dr. Arjuna Muduli
Host, me

Dr. Rajanikanta Swain



1286-Dr.S.Nagendram

190040027 ANNA BHARGA...

190040056_sathwik bhargava...

Layout

Participants (44)

Q Search

D3 Dr S Koteswara Rao ECE 3843

DR Dr. K. S. Ramesh

G gvs0raos

O ohmprabhu05

PB POLAIAH BOJJA

R Ramakrishna_ece

S1 suresh 190040225

TS Tilak Sai

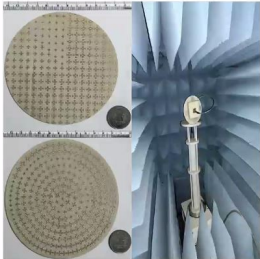
VT V. Teju

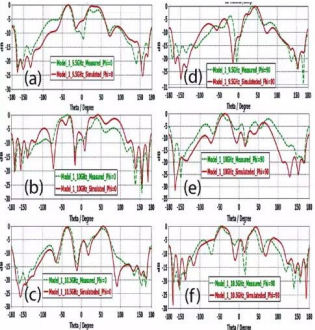
VA Vipul Agarwal

Mute all Unmute all

OAM Vortices

Metasurface





Comparisons of simulated and measured normalized E-patterns for PORD Model-1 (a-c) at $\phi = 0^\circ$ and (d-f) at $\phi = 90^\circ$ for 9.5 GHz, 10 GHz, and 10.5 GHz

Unmute Start video Share Record

Participants Chat

Day-3

Date:30-9-2021

Time:2:00 To 4:00PM

Resource Person: Dr.Tanmaya Kumar Das
Assistant Professor
C.V.Raman Global University
Odisha

E-Mail:Tanmaykumar.das@cgu-odisha.ac.in

Ph.No:7008486512

Topic: RFID Antennas for Biomedical Applications

The screenshot shows a Cisco Webex meeting window. At the top, there's a menu bar with options like File, Edit, Share, View, Audio & Video, Participant, Meeting, Breakout Sessions, and Help. Below the menu, there are three small video thumbnails of participants: 1286 Dr.S.Nagendram (Host, me), 1748 Dr. N.V.K.Ramesh, and 190040001 govind. The main part of the screen displays a presentation slide from C.V. Raman Global University, Odisha, Bhuvaneshwar, India. The slide is titled 'RFID Antennas for Biomedical Applications' and is part of an FDP on 'Recent Advances in Wireless Systems and Emerging Technologies'. It is presented by Dr. Tanmaya Kumar Das, Assistant Professor, with email tanmaykumar.das@cgu-odisha.ac.in. The slide also mentions the Department of Electronics and Communication Engineering at C.V. Raman Global University, Bhuvaneshwar. On the right side of the meeting window, there is a 'Participants (82)' list showing various participants with their IDs and names. At the bottom of the window, there are controls for Unmute, Start video, Share, Record, and a chat window. The Windows taskbar is visible at the very bottom, showing the time as 2:09 PM on 9/30/2021.

Cisco Webex Meetings | Meeting Info | Hide Menu Bar ^

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

1286 Dr.S.Nagendram Host, me 1748 Dr. N.V.K.Ramesh 190040001 govind

C. V. Raman Global University ODISHA BHUBANESWAR INDIA

FDP on "Recent Advances in Wireless Systems and Emerging Technologies"

RFID Antennas for Biomedical Applications

Presented By:

Dr. Tanmaya Kumar Das
Assistant Professor
Email: tanmaykumar.das@cgu-odisha.ac.in

Department of Electronics and Communication Engineering
C.V. Raman Global University, Bhuvaneshwar

Participants (82)

1D 1286 Dr.S.Nag... Host, me

DR Dr. Tanmaya Kumar Das

C CR054 Cohost

1N 1748 Dr. N.V.K.Ramesh

1G 190040001 govind

1K 190040010 A. SAI KUMAR

1B 190040015 A Venkata Bindu Bha...

1K 1900400256 dileep kora

1S 190040025-Anisetty Devi Supraja

1S 190040033 Arumalla Sasikeerthi

1S 190040039 Randani Sai Sankar

Mute all Unmute all

Unmute Start video Share Record

Activate Windows
Go to Settings to activate Windows.

Type here to search

29°C 2:09 PM 9/30/2021

Cisco Webex Meetings | Meeting Info | Hide Menu Bar ^

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

1286 Dr.S.Nagendram
Host, me

Dr. Tanmaya Kumar Das

1712 Dr.KSRamesh

1748 Dr. N.V.K.Ramesh

Participants (154)

Search

1D 1286 Dr.S.Nag...
Host, me

Dr. Tanmaya Kumar Das

CR054
Cohost

1K 1712 Dr.KSRamesh

1N 1748 Dr. N.V.K.Ramesh

Mute all Unmute all

Chat

from MR>BEAN to everyone: 2:11 PM
i back u r lovely MR>BEAN
from 190040091_Chilukuri Sai Divyant to everyone: 2:12 PM
i'm**

To: Everyone

Enter chat message here

Activate Windows
Go to Settings to activate Windows.

Frequency bands standardized for RFID Technology

Frequency Band	Features and Applications	Read range
100-300 kHz (LF)	<ul style="list-style-type: none"> Used for ID card Product detection and billing in shopping malls 	Short range up to 5 cm
10-16 MHz (HF)	<ul style="list-style-type: none"> Retail applications and healthcare applications 	Medium range up to 30 cm
850-950 MHz (UHF) & 2.4 GHz, 5.8 GHz (ISM)	<ul style="list-style-type: none"> Industrial scientific and medical applications Scientific and military applications Automatic toll collection 	High range up to 1 m

Applications of RFID

Manufacturing Industry

- Raw material tracking
- Production line visibility
- Supply chain management
- Tracking of finished products

Retail Industry

- Stock visibility and management
- Item tracking
- Smart checkout/billing
- Smart Shelves
- Smart trolley

Logistics

- Supply chain tracking
- Asset tracking
- Security
- Baggage Handling

Access Control

- Automatic access control
- Automatic toll collection
- People tracking

Healthcare

- Patient identification
- Patient tracking
- Patient monitoring
- Drug Compliance

Cisco Webex Meetings | Meeting Info | Hide Menu Bar ^

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

1286 Dr.S.Nagendram
Host, me

Dr. Tanmaya Kumar Das

1748 Dr. N.V.K.Ramesh

190040001 govind

Participants (88)

Search

1D 1286 Dr.S.Nag...
Host, me

Dr. Tanmaya Kumar Das

CR054
Cohost

1N 1748 Dr. N.V.K.Ramesh

1G 190040001 govind

1B 190040015 A Venkata Bindu Bha...

1K 1900400256 dileep kora

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1S 190040033 Arumalla Sasikeerthi

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Activate Windows
Go to Settings to activate Windows.

Introduction

- Radio frequency identification (RFID) is a wireless data capturing technique which utilizes radio frequency (RF) waves for automatic identification of objects.
- RFID relies on RF waves for data transmission between the data carrying device, called the RFID tag, and the interrogator.
- RFIDs offer non-line-of-sight, and all-weather reading.
- RFIDs also offer larger data-carrying capacity than an optical barcode.

An RFID system consists of three major components:

- A reader or interrogator, which sends the interrogation signals to an RFID tag for identification.
- An RFID tag or transponder, which contains the identification code.
- Middleware software, which maintains the interface and the software protocol to encode and decode the identification data from the reader.

Fig. 1. Basic block diagram of an RFID system.

```

graph LR
    Computer --> RFIDReader[RFID Reader]
    RFIDReader --> Antenna[Tx/Rx Antenna]
    Antenna -- "Interrogation signal" --> RFIDTag[RFID Tag]
    RFIDTag -- "Backscattered signal" --> Antenna
  
```

- The RFID reader can read tags only within the reader's interrogation zone.
- The reader is most commonly connected to a host computer which performs additional signal processing.

(Dr.K.S.Ramesh)
(Dr.M.Suman)

GSRG Group-Head

HOD-ECE

