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IMPORTANCE AND SCOPE

The requirement for efficient and low-profile antennas has fuelled research work in the development of antenna structures with performances considerably enhanced over traditional antenna structures and methodologies. In this context, the development of the dielectric resonator antenna technology has taken significant strides in overcoming fundamental limitations in the design of broadband and efficient antenna structures.

It is well known that antenna structures like the microstrip patch suffer from reduced efficiency due to the stratified nature of the design, resulting in surface wave loss together with the presence of a conducting patch contributing to conductor loss in the antenna structure. The dielectric resonator antenna is ideally suited for low-loss applications due to the absence of conductors or surface-wave loss. Furthermore, the achievable bandwidth with the dielectric resonator topology of the order of 60% or more far exceeds that of broadband microstrip patch antenna configurations with typical bandwidths of 10 - 15% using parasitic patch loaded configurations. In addition, a noticeable feature of such bandwidth enhancement by the dielectric resonator antenna is that the wideband nature is accompanied by absolute stability of radiation characteristics across the large impedance bandwidth, making the radiation bandwidth identical to the impedance bandwidth. The above features of the dielectric resonator antenna make it an ideal choice for wideband low-profile applications with controlled radiation characteristics.

In spite of the potential of the dielectric resonator technology, analysis techniques for the dielectric resonator antenna have not received adequate attention particularly in the Indian context. This is particularly also significant as the analysis leads us to the in depth understanding of the modes of the antenna structure and their contribution to the dielectric resonator coupling problem. The course therefore also aims at introducing and investigating full-wave techniques for analysis of the antenna to offer a comprehensive coverage of the dielectric resonator antenna topic from the analytical, simulation and design aspects.

KEY TOPICS TO BE ADDRESSED

- Basic electromagnetic theory
- Planar and non-planar feeds to the dielectric resonator
- Wideband dielectric resonator antennas
- Circularly polarized dielectric resonator antennas
- Multiband dielectric resonator antennas
- Dielectric resonator antennas and metamaterials
- Surface Integral analysis of the dielectric resonator antenna
- Green's function analysis of the dielectric resonator antenna
- EMI / EMC
- Radar and communication
- Microwave components

SPEAKERS

Faculty / domain experts from IIT, Kharagpur

EXPERIMENTS

Use of HFSS simulation tool for antenna simulation and design. Familiarity with microwave measuring instruments including return loss and radiation pattern measurements.

Course Schedule

9 am to 5 pm with 1 hour lunch break each day.

Short term course on “Analysis and Implementation of Dielectric Resonator Antennas” November 21-26, 2016

Registration Form

Name _____

Designation _____

Sex (M/F) _____

ORGANIZATION _____

Highest academic qualification _____

Address _____

Phone / Fax _____

Email (Compulsory) _____

Accommodation required Yes / No _____

Sharing / Single (Tick as appropriate)

VGH / TGH (Tick as appropriate)

Details of bank draft: Amount Rs _____

Draft No.: _____ Dated: _____

Issuing Bank & Branch: _____

Date: _____

Place: _____ Signature

Recommendation and forwarding from the
Organization:

Signature with seal of the
Head of the Organization

General Information

Situated at a distance of 130 km from Kolkata, Kharagpur welcomes you with its green, calm and quiet campus, away from the din and bustle of city life. In winter, Kharagpur is particularly pleasant with bright flowers all around with a mild and comfortable climate. Historically, IIT Kharagpur started its journey in the "Hijli Detention camp". Presently it houses a science and technological museum known as the Nehru Museum of Science and Technology. Also, the scenic township of Digha on the sea beach is only 120 km away from Kharagpur.

Connectivity

Kharagpur is an important railway junction and is well connected to all parts of the country by rail service (SER). Numerous local & express trains are available from Howrah. The Institute is approximately 5 Kms from the Kharagpur railway station with the bus stand adjacent to the railway station. Rickshaws (Rs. 80), auto-rickshaws (Rs. 80) and taxis (Rs.140) are available from the railway station.

COURSE COORDINATOR

Prof. Bratin Ghosh

Mailing address:

Prof. Bratin Ghosh
Department of Electronics & Electrical
Communication Engineering,
Indian Institute of Technology,
Kharagpur-721302,
West Bengal

Email : bghosh@ece.iitkgp.ernet.in,
pandaarabinda@gmail.com

Phone : +91-3222-283534

Mobile No. +91-9831064495

Fax: +91-3222-255303/283534

Accommodation & food

Limited shared accommodation is available in the guest houses VGH/TGH on personal payment basis. The charges are as follows: Daily charges: Rs. 150/- per bed (Non-A/C three bedded shared room in VGH); Rs. 400/- (A/C single room in VGH); Rs. 300/- per bed (A/C two bedded shared room in VGH); Rs. 250/- (Non-A/C single room in VGH); Rs. 750/- per bed (A/C shared room in TGH); Rs. 1000/- (A/C single room in TGH). On prior intimation we will try to arrange accommodation with the above charges. Course fees includes breakfast/lunch/tea/snacks.

Eligibility for Participation

Teachers from Colleges / Institutions / Universities.
Scientific Officers / Instructors / Technical Assistants
/Research Scholars/Under Graduate and Post
Graduate Students/ Participants from Industries.

How to apply

Interested persons may apply in the form given herewith alongwith the registration fee in the form of demand draft drawn in favour of '**CEP-STC, IIT Kharagpur**', payable at Kharagpur. The application should be sent to the mailing address of the course coordinator latest by **November 1st, 2016**. The total number of seats in this course is limited to 35. In view of the limited seats, selection will be made on first come first serve basis.

Course fee:

Course fees for Students	Rs. 10000.00
Course fees for Industry	Rs. 20000.00
Course fees for Teachers / Others	Rs. 15000.00

Course fee also includes lecture notes and refreshments during the course.

Short term course On "Analysis and Implementation of Dielectric Resonator Antennas"

November 21-26, 2016

*A Continuing Education Programme of
Indian Institute of Technology
Kharagpur
Prof. Bratin Ghosh*



Organized by
Department of Electronics and Electrical
Communication Engineering
Indian Institute of Technology
Kharagpur – 721 302, India

