VOLUME 1, ISSUE 3

DEPARTMENT OF INSTRUMENTATION AND CONTROL ENGINEERING
SARANATHAN COLLEGE OF ENGINEERING

iCERYX

The Voice of ICE

We Keep Moving Forward

National Instruments, USA presents Saranathan College of Engineering with the prestigious "NI LabVIEW Academy Award

ICE ADDS TREND INSTRUMENTATION AND AUTOMATION PVT. LTD. TO THE LIST OF TIE-UP INDUSTRIES.

FOREWORD

The department of Instrumentation and Control Engineering motivates the students to be more participative in all the academic and co-curricular events. The students have gone in for many certification courses which are of valued importance. We also proudly state that we have been awarded the NI LabVIEW Academy Award. The students are put into the right path of many spoken tutorials like SciLab. The current third years are monitored by their seniors for their mini-projects and many growth oriented activities. The department encourages its students to enthrall in all activities that result in positive outcomes and to actively use the opportunities made available to them. We wish the students would take iCERYX as a platform to showcase all their achievements from these endeavours.

Dr.S.M.GiriRajkumar,

HOD/ICE

FROM THE EDITORIAL BOARD

As you know, there have been quite a lot of activities going on, in our department lately and we've been having a lot of good changes and improvements within our family. As the PR team, it's our job to present to you and the world around us, about these activities.

We are back again with the first official issue of **iCERYX**, wherein a glimpse of our department activities has been portrayed. It all came true only because of all your consistent support and contribution.

In this issue we have focussed on the theme "**Engineers - The Change makers**"

iCERYX beckons young budding engineers to express their ideas. It provides you an opportunity to showcase extensive knowledge about our department.If your contribution is not in the pages, don't give up. Do keep us always fledged with your articles be it technical or non-technical. This could your be first step to fame and glory!!!

We would be obliged if you spare a few minutes to read our iCERYX because it is something we all have to be proud. And most important of all, don;t forget to send us your valuable feedback.

PR Team

Ben-Hur S. Christopher, Final year

Shuprajhaa T., Third year

Anuroopa Devi S., Final year

Nazreen Banu A., Final year

Nishanth D., Third year

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NATIONAL INSTRUMENTS, USA PRESENTS SARANATHAN COLLEGE OF ENGINEERING WITH THE PRESTIGIOUS "NI LABVIEW ACADEMY AWARD

PR TEAM

• Dr. Arutchelvi, Dean-Academics, Mr. Iyer Gopal, HoD T&P, Vasantha P. N. and Shantha Kumar M. of final year, ICE received the "LabVIEW academy award" during the NI-DAYS 2014 Conference on 18th September, 2014 at Bangalore.

• The awards ceremony, which was part of the annual NI-DAYS 2014 Conference hosted by National Instruments, USA was presided by Mr. Sathish Kannavi, Executive Director, NI India.

• The key note address was delivered by Mr. Alex Davern, COO, CFO and Executive Vice President of National Instruments, USA.

• Our college was one of the 6 institutions in the country that has been awarded this prestigious title. The students, along with Dr. Arutchelvi and Mr. Gopal Iyer received the award from Mr. Alex Davern.

• Around 400 leading industries in the field of Control Engineering, including Schneider Electric, Germany were also present in the conference where they showcased their industry-standard products created by using LabVIEW.

• Dr. Arutchelvi attended the Directors meet which focused on the setting-up and strengthening of Industry-Institution ties.

• Mr. Gopal Iyer had discussions with various SMEs that were present at the conference and had positive outcomes with possible placement drives at our institution.

• The awards ceremony was followed by a series of seminars pertaining to the industrial application and significance of LabVIEW. The students attended seminars on Embedded Systems, Industrial Automation and RF communication, interfaced with LabVIEW.

• There was also a LabVIEW Coding Challenge contest, which was a test of one's technical know-how in LabVIEW. The participants were given a problem statement which was to be solved within 5 minutes using LabVIEW.

ICE ADDS TREND INSTRUMENTATION AND AUTOMATION PVT. LTD. TO THE LIST OF TIE-UP INDUSTRIES.

PR TEAM

• The department of Instrumentation and Control Engineering is proud to have signed a Memorandum of Understanding with TREND Instrumentation and Automation Pvt. Ltd., Chennai on 11th October, 2014.

• The Principal signed the documents, on behalf of the college, in the presence of the Director, Dean of Academics, Head of the department of Instrumentation and Control Engineering and Head of Training and Placement.

• TREND Instrumentation and Automation Pvt. Ltd. is an ISO 9001:2008 Certified Company providing complete solution for Instrumentation, Automation and Electrical activities for various process industries.

• They take care of all industrial project handling aspects right from Design till Installation, Testing and Commissioning

• They specialize in the following domains of engineering solutions:

1. Automation Solutions
2. Detail Engineering
3. Project Scheduling
4. Field as built Engineering
5. Site test reports
6. Site material close out sheet

• They also train students in various industrial skills that are in demand in the Instrumentation Industry.

• The department has initiated a positive tie-up with TREND Instrumentation and Automation Pvt. Ltd. with hopes of mutual benefit and growth in the days to come.

• The department also encourages the students to actively take part in the future activities as a result of this MoU.

Turning Procrastination Into Motivation

A.SATHIS EDWIN
THIRD YEAR ICE

Procrastination is something many people suffer from daily. Fortunately, it's also something that is purely mind over matter to overcome.

Typical procrastination excuses we tell ourselves :

- I'll do this tomorrow, there's not enough time to do this today.
- This is such a huge project, I don't even want to think about it yet, I'll put it off for one more day.
- I don't really need to do this yet; it can wait until sometime in the future.

Unfortunately all of these lead to the inevitable day when you must actually complete the task. And while most people actually do get it done under that time pressure, working that way does not always produce the best results, and allows less time to proof and make it perfect.

Perhaps procrastination is a part of the human condition, having an extended period of time to accomplish something makes us put it off into the future, even if we can begin it now.

Perhaps it is modern society, which often times seems to focus on immediate and instant results, rather than something carefully crafted and refined over a longer period of time.

Part of the modern business world for most of us also involves a constant connectivity. Cell phones, office phones, email, Blackberries, etc. are constantly ringing, buzzing andupdating interrupting us with communications.

Our friends, parents, co-workers, bosses, managers, etc. all are vying for our attention for sometimes trivial and sometimes important messages.

While these are all part of modern life, and we have learned to function efficiently with them, they can be a hindrance when in the midst of a project which requires complete focus.

There is absolutely nothing wrong with staying in touch and being friendly/social with your peers, co-workers and friends, and giving proper attention to your loved ones – in fact I encourage all of those things.

Ways to minimize procrastination and maximize motivation:

To be the most proficient, successful and happy at whatever it is you do in life, especially if you are producing intellectual products; you need to have a distraction-free environment.

- This will guarantee your mind is completely focused on the task at hand and you'll always get the best results.

- Start projects immediately if you have idle time. Once you actually start something and get into the flow of it, you'd be surprised how easy it is. Don't think about starting something, act.
- You can always tweak the project and make changes as you go along. Getting that first start is vital.

•Remove all distractions from your environment. Anything that will make you lose focus is something that will potentially set you up for procrastination and destroy your motivation.

•Eat well, sleep well and get exercise. From personal experience, a healthy mind and body is less likely to procrastinate.

You'll feel better, you'll be more upbeat and active, and more optimistic about accomplishing your goals sooner rather than later.

If you're tired or hungover, you'll be less productive and more likely to procrastinate a task until the next day.

Mix up your projects and assignments so you're not simply doing the same exact thing every day. If you keep things fresh they will be more interesting and compelling for you to work on, and you'll be less likely to procrastinate them.

- Keep your thoughts positive, and recognize when you're entering a cycle of procrastination. Here is where you will need to address mind over matter.

- Start by just getting into it and doing step one of whatever your task is and go from there. Sit down and break the project up into consumable parts that are less daunting.

PLACEMENT NEWS

ICEIANS BECOME INFOSCIONS

- 7 students of Final year ICE were placed in the Campus Recruitment Drive by Infosys at our college on 7.10.2014.
- An aptitude screening test was conducted on 6.10.2014 in which 81 students out of 485 students were shortlisted, overall with 7 students from ICE in specific.
- On the successive day, HR interview was conducted for the shortlisted students. Of the 81 shortlisted students, 71 were selected, overall.
- ICE was the only department to have produced 100% result in the HR interview, with all shortlisted students to be placed.
- The placed students are:
    1. Allwyn R.
    2. Anusha S.
    3. Ben-Hur S.Christopher
    4. Nalini M.
    5. Vasantha P.N.
    6. Vijay Vishwanath Prasad
    7. Nivetitha I.S.
- The Department congratulates all the students who have been selected and positively hopes for the future placements.

ICE STUDENT PLACED AT SANS PAREIL

- Gokul V. of Final Year ICE was placed at Sans Pareil, an IT Consultancy based at Chennai on 1.11.2014.
- 825 Students from 20 different colleges participated in the pooled drive conducted at-MAM College Campus by Sans Pareil on 1st November 2014. The drive started with a pre – placement presentation by Mr Allen – CEO of Sans Pareil. This was followed by a test lasting 45 minutes. The students who applied for the technical JD (entry level professional -ELP) took the technical test while the students applying for the business developmentexecutive (BDE) and the talent acquisition executive (TAE) took the aptitude test. After thetests 42 candidates were short listed for the BDE and TAE. 14 of them were from ourcollege. For the ELP option 35 students were shortlisted, 7 of them were from our college. This round was followed by a Personnel interview After the HR rounds 20 studentswere given offers for the BDE and TAE jobs, 8 of which were to our college students while12 students were given offers for the ELP job 3 of which were to students of our college.

VISITORS TO THE DEPARTMENT

ICE ORGANIZES GUEST LECTURE ON DEVELOPING THE REQUIRED SKILLS FOR THE INSTRUMENTATION INDUSTRY

- The final year students of the department of Instrumentation and Control Engineering were given a guest lecture on developing the required skills to be an Instrumentation Engineer on 11th October, 2014.
- Mr. Vishnuvardhan J., Managing Director of TREND Instrumentation and Automation Pvt. Ltd., was the guest for the day.
- As a young and dynamic professional he has had significant experience in the EPC Industry and has successfully executed 9 projects both in India and abroad. He also has 2 patents under progress.
- He highlighted the various aspects of Instrumentation Engineering and the processes involved in executing an engineering project in the industry.
- He also had an interactive discussion with the students on the different types of Instrumentation industries and the job prospects in those companies.
- As a final note, he illustrated the key skills that the industries expect out of fresh Instrumentation engineering graduates and encouraged the students to develop the same.
- The students were motivated by his lecture to take steps towards becoming employable in the core industry sector.

STUDENT ACHIEVEMENTS AND DEPARTMENTAL ACTIVITIES

CO- CURRICULAR ACTIVITIES:

- Third year students presented their paper at Chennai.
- IIIrd and IVth year ICE students had taken up NSDC test on 6th, September.22 students cleared the same.

SPOKEN TUTORIALS:

- The SCIlab spoken tutorials registration was done for IIIrd and IV year students on 9th, September.
- The SCIlab online test was successfully conducted for 53 third year ICE students on 11th September and 14 students cleared the test.
- From Final year ICE, 64 people had participated in the SCIlab online test on 25th September. 61 students cleared the exam.

LAB ACTIVITIES:

- A discussion was held with the Director of LABTECH on 8th, September regarding proposals for the process control lab.
- On 12th September, A Computer's hard disk from the VI lab was taken by CSG for replacement.
- The UV-VIS Spectrophotometer Present in II lab was serviced by Systronics on 30.10.2014 and the service expense was Rs 6140/-
- Consumbles for Circuits and instrumentation System lab requested and approved by the Principal on 13th October,2014.
- Stock Register updated with consumables purschased for LIC lab on October 15th,2014.

CLAD RE-EXAM:

- On 17th September, the CLAD re-exam was conducted for 5 students and 2 staff. In the exam, 5 students and 1 staff cleared the exam.
- A Copy of SCIlab Credentials was given to Principal, Director and Secretary on 25th September.

E- YANTRA

- The online test for E-Yantra had been confirmed for 6 bathces of 32 students at the date of 26th, september on 5th, september.
- A email was received from CFD/AU regarding E-Yantra on 6th, septenber. In that, SCE had finished 90% of task.
- The E-Yantra reports were submitted from Prof. Hari on the date of 10th, september.
- The E-Yantra proposal had been submitted to principal on 11th, september.
- The clarification from secereтary and director to be sorted regarding E-Yantra proposal.
- A quatation rate was discussed by Nex- Robotics for E-Yantra on 12th, september.
- The charges were freefied in the respective discussion with Nex- Robotics.
- The E-Yantra proposal had been submitted to principal and director on 13th september.
- The E-Yantra Files had been given to principal on 17th september.
- The discussion was carried out regarding E-Yantra file reports with principal and director on 17th september.
- E-Yantra list and schedule had been given to Mr. Hari on 22nd september.
- E-Yantra team registration were under in progress. The respective online exam details were expected from IIT, Bombay.
- On 26th september, for E- Yantra Contest 31 teams out of 32 were taken online test sucessfully.
- On 26th september, The discussion was made with vendor regarding goods supply for E-Yantra.
- The PO was submitted by Mr. GopalaKrishnan for E-Yantra on 30th, September. This is under in modofication.

ASSOCIATION ACTIVITIES:

- A guest lecture was taken by Dr. Subramanian in the title of "Stress Management" on 3rd, September.
- Voice of Saranathan E-Magazine was released on 5th, September.
- On September 23rd, A Guest lecture was given by Mr. Visweswaran, NI for second and final year ICE students.
- Guest lecture for ICE final year students on "Carieer guidance to acquire an opportunity in core company" by Mr. Sultan Alaudeen Control systems engineer at Honeywell on 01.11.2014.
- Mr.Vishuvaradhan ,,M.D of Trend Automation gave guest lecture for final year on 11th October,2014.
- ICE adds TREND Instrumentation and Automation Pvt. Ltd. to the list of Tie-up Industries on 11th October,2014.

MEETING DETAILS OF FACULTIES AND STUDENTS:

- The NI minutes meeting was conducted with Mr. Visweswaran on 4th, September. The corresponding documents had handed over to principal/ director/ secretary.
- A meeting was conducted with CEO of SIMI, Bangalore on 4th, September.
- The purpose of the meeting with SIMI was to arrange a guest lecture, internship and placement opportunity from the respective company.
- On 12th September, the discussion with Mr. Visweswaran, NI was failure due to personal care and spot registration issues.
- On September 23rd, a meeting was conducted with SCE and NI on, "Next Step to Lab View Academy" at11.30p.m to 1.30p.m.
- The proposals from NI and Trend automation were given to the director on 26th September and the respective objective was explained.

GENERAL NEWS

- " SWACHBHARAT MISSION" engaged effectively by ICE STUDENTS and also made a presentation of the same by vasantha and Aasin rukshana from final year ICE on 11th october.
- S.Niveditha III Yr student received the scholarship amount from the maagement on 18th october,2014.

ICE MAKES A MARK AT TI INNOVATION CHALLENGE INDIA CONTEST 2015

PR TEAM

An all India level competition had been conducted by The Texas Instruments. It is TI Innovation Challenge India Design Contest 2015. The competition was all about to design an instrument constrained to our innovation. The project must be innovative and useful. The important criterion is that the instrument which is used by the participants should only be Texas Instruments components.

More than 3100 teams participated all over India. The Texas Instruments got a panel of experts for the selection of proposal. The reviewers paid attention to a number of aspects such as completeness of the proposal, innovation, usage of TI parts, organization of report etc.

The quality of work had been judged from in-depth market analysis. After a month of rigorous review process, about 1209 teams have passed the qualifying round entering the quarter final round. Then, these short-listed teams would be continuing their journey in TI contest and will receive the components from TI to realize their idea and convert it into a working prototype.

Two teams of our department-ICE had participated in this contest and one of the teams got selected to the quarter-final round. The team comprises of two members:

1. S. Sriram(3rd yr)
2. D.Nishanth(3rd yr)

This achievement is not possible for sure without a proper guidance. This team has been guided by two of our faculty members:

1. Mr.S.Ramachandran-Assistant Professor
2. Ms.S.Rathna Prabha- Assistant Professor

Our students really worked hard to pass through this qualify round as there was a tough competition. Our department feels really proud and conveys its hearty congratulations to the achievers.

NI UPDATES:

- Labview Training held On 29.10.2014 To 31.10.2014 For Final Year Students myRIO Installation With Real Time Systems.
- Labview Training held On 03.10.2014 To 05.10.2014 For THIRD Year Students regarding core 1&2 training.
- Principal requested for demo of MyRIO installation for all department HOD's to Dr.S.M. Girirajkumar HOD/ICE ON 24th October 2014.AS Per the above request the demo session was handled by the NI resources person Mr.Muralikrishanan for ECE and MECH staff members in microwave lab on 28th October,2014.

YOKOGAWA TRAINING PROGRAMME

- Yokogawa Training Dates are proposed from 18.12.2014 To 22.12.2014 and 28.12.2014 To 30.12.2014 for Final Year students.

JOURNAL PUBLICATIONS

1. A. Thamemul Ansari, K. Thivakaran, K. Tharani Raja, H. Kala, S. Abirami, "Modelling and Controlling the Level of Nonlinear Process via Diverse Control Strategies" , International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering(2320-3765); Volume 3, Issue 9, September 2014.

2. JAGATISKUMAAR B, VIVEK VIJAYAN C, VINOTH K, N. NITHYA RANI ," Controlling of multivariable process station using cascade and a selector in labVIEW" in IJAREEIE, volume 3, issue 9, September 2014.

3. R.Keerthana,K.S.Gowtham Babu,S.Santhiya,P.Aravind,"Level Control of Non Linear Tank Process Using Different Control Technique"in IJAREEIE,Vol 3,Issue 9

4. G.karpagam,R.aasin rukshna,G.savithri,Comparative of diverse methods for a non-linear process,International journal of innovative technology and exploring engineering,vol-X,issue-X

5. G.karpagam , R.Aasin rukshna , G.Savithri title :comparative of diverse methods for a nonlinear process. journal name: blue eyes intelligence engineering and science publications pvt ltd. Volume-4 .issue4 ."IJITEE"

6. S.Allwin, S.Biksha natesan, S.Abirami, H.Kala, A.Udhaya prakash, Comparison of Conventional Controller with Model Predictive Controller for CSTR process, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Vol.3, issue 9, sep 2014.

7. A.Nazreen Banu, A.Nisha, I.S.Nivethitha,H.Kala,Nithya Rani, Evaluation of diverse controller Strategic for a level process, International journal of innovative Research in electrical, electonics ,instrumentational and control engineering. volume 2 issue 8.

8. G.Vijayalakshmi, "Design and Implementation of Controller for Wind Driven PMSG Based Standalone System", IJIREEICE, Volume 2, Issue 7, July 2014.

9. S.Ramachandran, P.Aravind and S.RathnaPrabha, "Modelling Identification and validation for a Non-linear Process using Recurrent neural networks", IJREC, Volume 2, issue 4, October 2014.

SPORTS NEWS

- K. Thivakaran of final year ICE won a gold medal in the state level Table Tennis tournament conducted at PITS college of Engineering and was awarded a cash prize of Rs. 2000,

- He participated in the CM trophy table tennis tournameant that was conducted recently in Trichy.
- He was also given a cash award of Rs. 10000 by the secretary of our institution to commend his winning streak of 40 medals since he joined the institution.
- Ramkumar EL of final year ICE led the college chess team to the interzonal state level chess meet held at Srikrishna College of Engineering, Coimbatore.

CARBON NANOTUBES

U.SAI PRASANTH
THIRD YEAR ICE

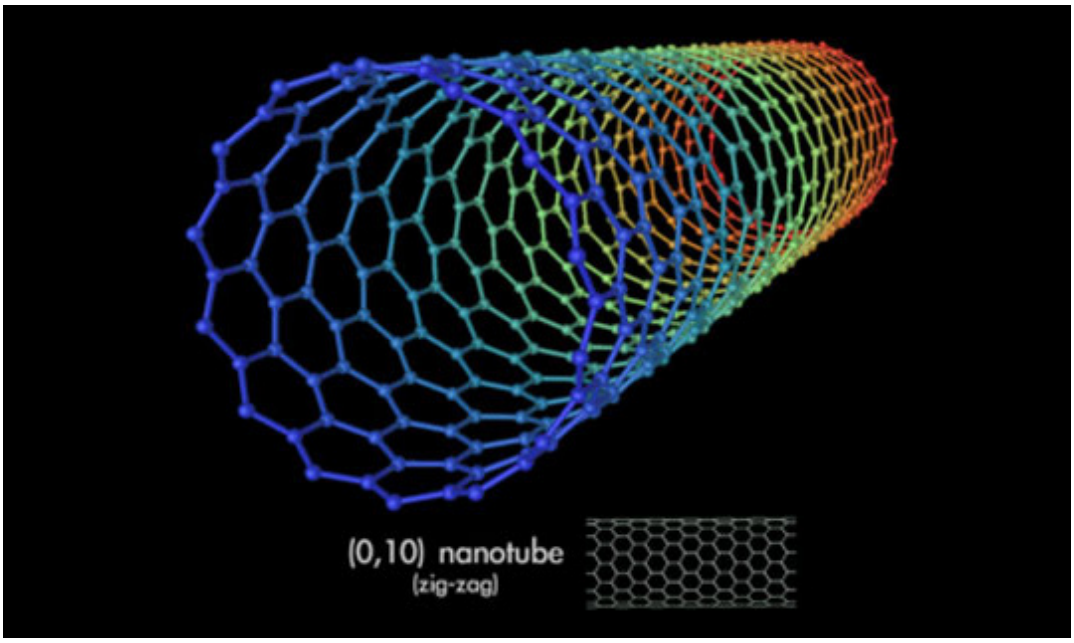
ABSTRACT:

In this paper, by using scalability of equivalent circuit of single-wall carbon nano tube(SWNT) in its bundle structure, bundled carbon nano tube (CNT) are modeled by the macroscopic resistive sheet. The numerical simulation implements the boundary condition of the surface resistivity. An anisotropic resistive sheet model to represent bundled CNTs electromagnetically is presented. Then, a numerical simulation using method of moments (MoM) is developed to calculate radiation efficiencies of resonant strip antennas made up of bundled CNT and thin gold film. The radiation efficiencies are compared as a function of frequencies and number density of bundled CNT to find a crossover frequency where CNT antenna performs as the thin gold film antenna. This can be used to introduce resonant dipole antennas with dimensions much smaller than traditional half-wavelength dipole in Tetra hertz band.

WHAT ARE CARBON NANOTUBES???

A Carbon Nanotube is a tube-shaped material, made of carbon, having a diameter measuring on the nanometer scale. A nanometer is one-billionth of a meter, or about one ten-thousandth of the thickness of a human hair. The graphite layer appears somewhat like a rolled-up chicken wire with a continuous unbroken hexagonal mesh and carbon molecules at the apexes of the hexagons. Carbon Nanotubes have many structures, differing in length, thickness, and in the type of helicity and number of layers. Although they are formed from essentially the same graphite sheet, their electrical characteristics differ depending on these variations, acting either as metals or as semiconductors.

As a group, Carbon Nanotubes typically have diameters ranging from <1 nm up to 50 nm. Their lengths are typically several microns, but recent advancements have made the nanotubes much longer, and measured in centimeters. The intrinsic mechanical and transport properties of Carbon Nanotubes make them the ultimate carbon fibers.



Overall, Carbon Nanotubes show a unique combination of stiffness, strength, and tenacity compared to other fiber materials which usually lack one or more of these properties. Thermal and electrical conductivity are also very high, and comparable to other conductive materials.

INTRODUCTION:

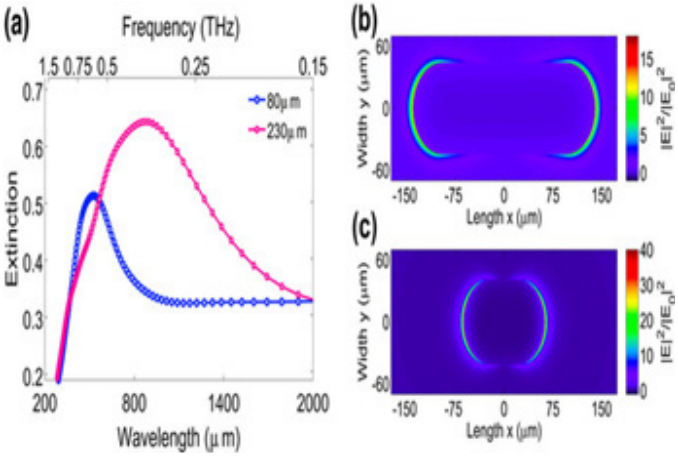
To demonstrate the photo-generation of THz antennas on the GaAs layer we have measured the THz extinction spectra of random arrays of rods with the same orientation generated at a fixed optical while varying their lengths. We have also measured arrays of rods with the same length but generated with different fluences. The figure given below shows an image of an array of rods. This image is taken by placing a CCD camera at the sample position. Their random distribution suppresses any effect due to periodicity in the THz extinction, while their horizontal alignment enables the excitation of antenna resonances for THz radiation incident with an horizontal polarization. A close view of a single linear antenna rod is shown in the effective dimensions of the photo-excided antennas were defined by the FWHM of the pumped fluence.. The illuminated area (filling fraction of the rods) corresponds to 18% of the surface. The spacing between two consecutive rods was chosen to be larger than 100 µm along the long axis of the rod and 40 µm along the short axis. These distances are large enough to minimize the near field coupling between consecutive rods33, while maximizing their filling fraction to

increase the THz extinction.

EXPLANATION :

To further investigate the localized modes associated to the photo-generated rods, we have performed Finite Difference in Time Domain (FDTD) simulations using a commercial software package (Lumerical Solutions). Details on the simulations can be found in the methods .Shows the extinction spectra of the 230 µm and 80 µm long rods. To approximate the simulated geometry as much as possible to the experiment, we have considered a graded variation of the carrier concentration in the GaAs film at the boundaries of the rod from N = 2 × 1018 cm−3 at the core to N = 5 × 1015 cm−3 in the unpumped surrounding region, which resembles the illumination profiles .

Nanotechnology is enabling the development of devices in a scale ranging from one to a few hundred nanometers. Coordination and information sharing among these nano-devices will lead towards the development of future nano networks, boosting the range of applications of nanotechnology in the biomédical, environmental and military fields. Despite the major progress in nano-device design and fabrication, it is still not clear how these atomically precise machines will communicate. Recently, the advancements in graphene-based electronics have opened the door to electromagnetic communications in the nano-scale. In this paper, a new quantum mechanical framework is used to analyze the properties of Carbon Nanotubes (CNTs) as nano-dipole antennas. For this, first the transmission line properties of CNTs are obtained using the tight-binding model as functions of the CNT length, diameter, and edge geometry. Then, relevant antenna parameters such as the fundamental resonant frequency and the input impedance are calculated and compared to those of a nano-patch antenna based on a Graphene Nano ribbon (GNR) with similar dimensions. The results show that for a maximum antenna



size in the order of several hundred nanometers (the expected maximum size for a nano-device), both a nano-dipole and a nano-patch antenna will be able to radiate electromagnetic waves in the terahertz band (0.1–10.0 THz).

Since synthesized the carbon CNT_ in1991, it has occupied an important position in the science and engineering fields.1,2 CNTs have many potential applications engineering, light-emitting sources ,and electronic devices.2–7The biggest impediment to its electronic device applications ,however, is that its electrical properties cannot convenient the growth process, and as grown.

CNTs have the compositions of both semiconducting and metallic CNTs and are contaminated with other catalysts.Thus, for the application of CNTs in, modification of their electronic characteristics after growth is essential.To modulate the electrical and optical properties of CNTs, various post-growth processes are utilized. For instance ,gas and the insertion of metallic

particles in CNTs have been tried and resulted in the

modulation of the band gap by up to a few eV.8,9

Gas-phase functionalization was shown to easily transform

metallic CNTs to semiconducting ones simply through

hydrogen exposure.8 Exposing an individual CNT to atomic

hydrogen generated C-H bonds on the surface of the CNT,

which resulted in an increase in the sp3 hybridization, which

enhances the semiconducting characteristics of the CNT. The

carrier transport dynamics that explains the semiconducting

properties of CNTs has not been characterized, however, although transport parameters such as plasma frequency,

CONCLUSION:

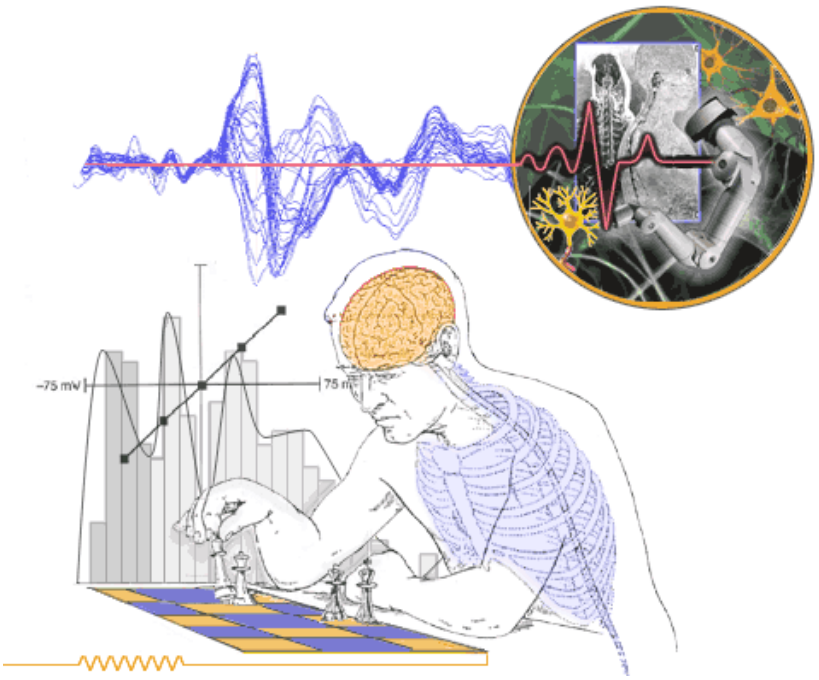
In communications and electronic engineering, a transmission line is a specialized cable designed to carry alternating current of radio frequency. Carbon nanotubes are expected to help in the miniaturization of electronic circuits. They are expected to bridge contact between macroscopic and nano world. CNTs working as antennas is a field still in its infancy. They are predicted to work efficiently in the high frequency range. Enhancement of radiation efficiency at tera hertz range was achieved using a bundle of single walled carbon nanotube (SWCNT) instead of a single SWCNT.

MONITORING OF HUMAN PHYSIOLOGICAL SIGNALS USING LABVIEW

RM.NACHAMMA
S.JERINE SUMITH
THIRD YEAR ICE

Monitoring of human physiological signals *NI LABVIEW is the non-invasive method of monitoring vital physiological parameters. Health status of a person can be determined using heart rate, respiration rate, and blood pressure which are collectively called as physiological parameters. Non invasive or indirect method involves the measurement of human physiological signals from external source of human body. These physiological signals are acquired from the human body through ECG sensor, NTC thermistor and blood pressure sensor respectively. The sensor output is interfaced with the LabVIEW simulator through NI *ELVIS board and analog protoboard connector. Abnormality in physiological parameter arises in a person suffering from fever, strokes, dizziness, hyper and hypotension. This system also predetermines the heart attack by continuous monitoring of BP. Hence the abnormalities will be detected accurately using LabVIEW software and database is maintained.

Monitoring Of physiological signals of a patient involves the recording of patient's physiological parameters like ECG, respiration rate, and blood pressure with the help of respective sensors. Especially in acute care environment such as the intensive care unit and the operating theatre, patient monitoring is crucial because immediate reaction to acute events, support of patient vital functions and therapeutic inventions might be needed. In patient monitoring process, health-care professionals have to cope with a vast amount of information and perform a series of control actions and decision-making tasks. The obtained physiological parameters along with information from therapeutic devices and other patient related data must be interpreted and validated. In addition, the acuity of the clinical environment frequently necessities real-time decision making, prompt response to life-threatening events, and handling of a variety of medical devices.



In this sense, patient monitoring might become a valuable tool if specialists' expertise and knowledge can be used in assessment of patient health status. Today, several patient monitoring systems are computer-based and collect and analyze patient data from a variety of medical devices. They provide processed data and in some cases, they incorporate medical knowledge to help health professionals in decision-making process. The capacity of such patient monitoring systems can be enhanced with National Instruments Laboratory Virtual Instrumentation Engineers Workbench (NI LabVIEW) software.

Implementation of LabVIEW for monitoring human health status aims to simulate the way medical professionals analyze, think, reason and draw decisions in human's health care. It involves only the relevant VI blocks rather than the complex coding to measure and compute the physiological data. The system can request waveforms corresponding to physiological parameters measured by the sensors. The VI blocks are designed in such a way that the medical specialists or any personnel can easily interpret with LabVIEW (i.e.) manually controllable. Monitoring of physiological signals, not only involves graphical representation of physiological parameters but also its data can be collected and stored for future references.

Brought to you by the Public Relations team of
The department of Instrumentation and Control Engineering,
Saranathan College of Engineering, Trichy.

Post your valuable feedback to ice.prteam@gmail.com