

IEEE EDS Kolkata Chapter Consolidated Activity Report 2021

1.

Name/type of the event: International Conference

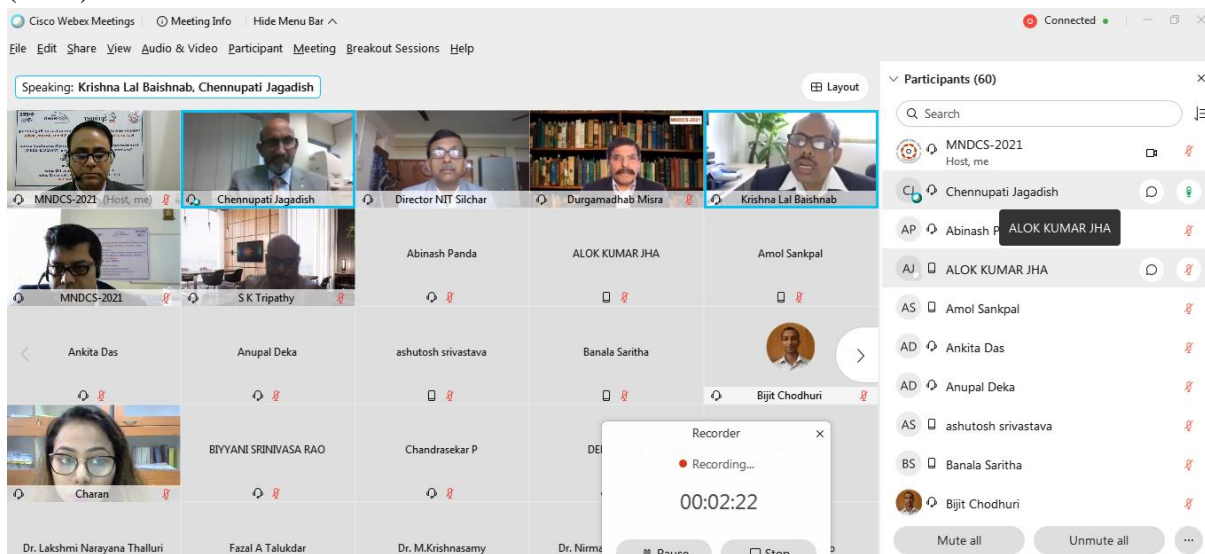
Date of event: 29th – 31st January, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

No of participants: 100

Brief report:

IEEE ED NIT Silchar Student Branch Chapter, Assam, India in association with IEEE Nanotechnology Council Chapter and Department of Electronics and Communication Engineering, National Institute of Technology Silchar organised International Conference on Micro/Nanoelectronics Devices, Circuits and Systems (MNDCS-2021) (*Virtual Mode*) during 29-31 Jan 2021. The conference aims to foster the theme through eight keynotes, four invited talks, and 56 oral presentations of research articles in the most relevant areas allied to the theme of the conference. The invited speakers were Prof. C. Jagadish and Prof. Lan FU, ANU, Australia, Prof. Ilya Sychugov, KTH-RIT, Stockholm, Sweden, Prof. Samar Saha, Prosperient Devices, California, USA, Prof. P. Susthitha Menon, UKM, Malaysia, Prof. Zoran Jaksic and Dr. Olga Jaksic of University of Belgrade, Serbia, Prof. Yong Shi, Stevens Institute of Technology, New Jersey, USA, Prof. Hieu P. T. Nguyen, NJIT, USA and Prof. Ajay Agrawal, CEERI, Pilani, India and Dr. Jacopo Iannacci, Center for Materials and Microsystems, Italy. The virtual conference was attended by around 100 participants comprising of IEEE EDS members and non-members including faculty, UG/PG/PhD scholars from India and abroad. The conference proceedings will be published in Springer Lecture Notes in Electrical Engineering (LNEE) Series (Scopus) and selected papers will be published in International Journal of Reconfigurable and Embedded Systems (Scopus) and Facta Universitatis: Series Electronics and Energetics (ESCI).



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Virtual mode of presentation: Prof. C. Jagadish, ANU (Keynote Speaker), Prof. Durga Misra, NJIT (General Chair), Prof. F. A. Talukdar (Branch Counselor), Dr. T. R. Lenka (Faculty Advisor) were present online.

2.

Name/type of the event: IEEE EDS Distinguished lecture

Date of event: 13th February, 2021

Organizing Institute: **IEEE ED SBC NSEC**

No of participants: 80

Name of speakers: Prof. Paul R. Berger, Director, Organic and Printed Flexible Electronics Laboratory, Department of Electrical and Computer Engineering, The Ohio State University

Title of Talk: Si-based Resonant Interband Tunnel Diodes for Quantum Functional and Multilevel Circuitry to extend CMOS

Brief report:

ED Netaji Subhash Engineering College Student Branch Chapter in association with the GnZ Student Cell, Department of Electronics and Communication Engineering organized an IEEE EDS Distinguished Lecture (one day webinar) on “Si-Based Resonant Interband Tunnel Diodes for Quantum Functional and Multi-Level Circuitry to Extend CMOS” on 13 February, 2021 by IEEE EDS Distinguished Lecturer, Prof. Paul R. Berger, Director, Organic and Printed Flexible Electronics Laboratory, Department of Electrical and Computer Engineering, The Ohio State University.

The online platform chosen for the event was ZOOM. The session started from 2:30pm and was for about 1hr 30 mins. The event had about 80 participants, including IEEE EDS members, B.Tech students from 1st to 4th year of ECE, and Faculty advisors, as well as, the Principal, NSEC.

One of the student members hosted the event, who introduced our Distinguished Lecturer, Prof. Berger gave a very informative presentation on the latest Si-based tunnel diode designing and explained every single detail for the attendees to get a clear idea on the topic. He gave a simple presentation to make us understand the electronics behind this, and helped us to connect with what we already knew about VLSI and the

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improvement in this technology. At the end of his presentation, there was an interactive QnA session, where the students, as well as our faculty participated. Finally, the session was concluded.

The event was very beneficial for the participants, interested in this particular field of electronic circuit design. Prof. Paul R. Berger cleared all the doubts of the attendees and has enlightened them in a path to pursue further studies in this as well. Thus, it was a successful event, in the presence of all interested participants.

The screenshot shows a Zoom meeting interface. The main window displays a presentation slide titled "LATCHED COMPARATOR 25 GHz DESIGN (Courtesy A. Seabaugh, formerly Raytheon Systems)". The slide compares Quantum and Conventional comparator designs. The Quantum design is noted for having 2 RTDs, 2 HFETs, and an Area=1. It features regenerative feedback, which causes latching behavior and a long settling time. The Conventional design uses 12 HFETs, 6 Schottky Diodes, and has an Area=6. Two SPICE simulation plots are shown, comparing the output voltages (V_{out}) and input voltages (V_{in}) over time (0 to 800 ps) for both designs at a 25 GHz clock. The Quantum plot shows a much faster settling time compared to the Conventional plot. A participants list on the right shows 80 participants, including SNEHA UPADHYAY (Me), Dip Kumar Saha (Host), Paul Berger (Co-host), and Ankit tiwari. The meeting controls at the bottom show "Wasim Habib" as the current speaker.

3.

Name/type of the event: IEEE EDS Webinar

Date of event: 13th February, 2021

Organizing Institute: IEEE ED SBC NSEC

No of participants: 50

Name of speakers: Dr. Manash Chanda, Assistant Professor, MSIT, Kolkata, and Vice Chairman, IEEE ED Kolkata Chapter

Title of Talk: Ultra Low Power Logic Circuit Design Using Adiabatic Logic

Brief report:

ED Netaji Subhash Engineering College Student Branch Chapter in association with the GnZ Student Cell, Department of Electronics and Communication Engineering organized an IEEE EDS one day webinar on "Ultra Low Power Logic Circuit Design Using Adiabatic Logic" on 13 February, 2021 by Dr. Manash Chanda, Assistant Professor, MSIT, Kolkata, and Vice Chairman, IEEE ED Kolkata Chapter.

The online platform chosen for the event was ZOOM. The session started from 5:00pm and was for about 1hr 30 mins. The event had about 50 participants, including IEEE EDS members, B.Tech students from 1st to 4th year of ECE, and Faculty advisors, as well as, the Principal, NSEC.

One of the student members hosted the event, who introduced our speaker, Dr. Manash Chanda. Dr. Chanda at first gave an overview on what IEEE is, what it does, and then the benefits of joining EDS. Then, he started his presentation on ultra-low power logic circuit design and explained the adiabatic logic and its

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benefits in this circuit design.

At the end of his presentation, there was an interactive QnA session, where the students, as well as our faculty participated. Finally, the session was concluded.

The event was very beneficial for the participants, interested in this particular field of electronic circuit design. Dr. Chanda cleared all the doubts of the attendees and has enlightened them in a path to pursue further studies in this as well. Thus, it was a successful event, in the presence of all interested participants.

The screenshot shows a Zoom meeting interface. The main content is a presentation slide titled "1.3 Adiabatic Logic: An Introduction". The slide includes the following text and diagrams:

- 1.3 Adiabatic Logic: An Introduction**
- First Law of Thermodynamics:**
 $dQ = dU + dW$
- A diagram of a cylinder with a piston. A yellow box labeled dU is inside the cylinder. A blue arrow labeled dQ points into the cylinder from the left. A blue arrow labeled $dW = PdV$ points upwards from the piston.
- Adiabatic Process:**
If $dQ=0$; $dU + dW=0$
i.e., $dU = -dW$

At the bottom of the slide, there are logos for "ELECTRON DEVICES SOCIETY" and "IEEE".

On the right side of the Zoom window, there is a "Participants (50)" list:

- SU SNEHA UPADHYAY (Host, me)
- MC Manash Chanda (Co-host)
- TD Tirthankar Datta
- AC Anubhab Chowdhury

Below the list are controls for "yes", "no", "go slower", "go faster", "more", and "clear all". There are also buttons for "Invite" and "Mute All".

At the bottom of the Zoom window, there is a toolbar with icons for "Unmute", "Start Video", "Security", "Participants", "Chat", "Share Screen", "Record", "Breakout Rooms", and "More". A red "End" button is visible in the bottom right corner.

4.

Name/type of the event: IEEE EDS Webinar

Date of event: 18th February, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 42

Name of speakers: Dr. Partha Ray, Former Head of R&D Groups at National Semiconductor, Sun Microsystems and Intel Corporation

Title of Talk: 'Schrödinger Solver with Visualization for Learning & Research

Brief report:

A webinar was organized by IEEE EDS Kolkata Chapter on February 18, 2021 at 7 p.m. IST. Dr. Partha Ray, Former Head of R&D Groups at National Semiconductor, Sun Microsystems and Intel Corporation who has also served as Professor of Electronics & Communication Engineering in reputed Universities, spoke on the topic, 'Schrödinger Solver with Visualization for Learning & Research'. He gave the attendees a demonstration of the Schrödinger equation solution with the help of a Visualization Tool culminating in a deeper understanding of the concept. The event was attended by 42 participants who attended the session very enthusiastically and had an extremely productive after session discussion.

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Dr. Partha Ray being greeted by Dr. Mousiki Kar, Chair, IEEE EDS Kolkata Chapter, during his talk on 'Schrödinger Solver with Visualization for Learning & Research'

5.

Name/type of the event: IEEE EDS Webinar

Date of event: 4th March, 2021

Organizing Institute: **IEEE ED SBC NSEC**

No of participants: 36

Name of speakers: [i] Dr. Angsuman Sarkar, Professor of the Department of Electronics & Communication Engineering, Kalyani Government Engineering College

Title of Talk: Tunnel FETs: Opportunities, Trends and Challenges

Brief report:

ED Netaji Subhash Engineering College Student Branch Chapter in association with the GnZ Student Cell, Department of Electronics and Communication Engineering, on the occasion of World Engineering Day on March 4, 2021, organized an IEEE EDS one day webinar on “Tunnel FETs: Opportunities, Trends and Challenges” by Dr. Angsuman Sarkar, Professor of the Department of Electronics & Communication Engineering, Kalyani Government Engineering College.

The online platform chosen for the event was ZOOM. The session started from 3:00pm and was for about 1hr. The event had about 36 participants, including IEEE EDS members, B.Tech students from 1st to 4th year of ECE, and Faculty advisors, as well as, the HOD of ECE,NSEC.

Our HOD Sir started the session, talking about World Engineering Day and how we have planned to celebrate this day through this event and then, one of the student members hosted the event, who introduced our speaker, Dr. Angsuman Sarkar. After this introduction, Dr. Sarkar started his presentation and explained in detail about TFETS, FINFETS and Double Gate FETS. He introduced the frontiers of TFET explorations, recent trends in TFET design and provided the listeners with a perspective on how to realize TFET applications in the future. At the end of his presentation, there was an interactive Q&A session, where the students, as well as our faculty participated. Finally, the session was concluded.

The event was very beneficial for the participants, interested in this particular field of MOSFETs. Dr. Sarkar cleared all the doubts of the attendees and has enlightened them in a path to pursue further studies in this as well. Thus, it was a successful event, in the presence of all interested participants.

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The screenshot displays a Zoom meeting interface. The main content is a presentation slide with the following elements:

- Diagram:** A cross-sectional diagram of a transistor showing the source, channel, and drain regions. Energy levels E_s^0 , E_c^0 , and E_d^0 are indicated. A red arrow shows current flow in the channel. A graph to the right plots current density I_c (mA/mm) against gate voltage V_{gs} (V).
- Equation:**
$$I_d \propto \exp\left(-\frac{\Phi_s^0 - E_c^0}{k_B T}\right)$$
- Sensitivity Equation:**
$$S = \left(\frac{\partial \log(I_d)}{\partial V_{gs}}\right)^{-1} = \ln(10) \left(\frac{\partial I_d}{\partial V_{gs}} \frac{1}{I_d}\right)^{-1} = \ln(10) \left(\frac{\partial I_d}{\partial \Phi_s^0} \frac{\partial \Phi_s^0}{\partial \Phi_c} \frac{\partial \Phi_c}{\partial V_{gs}} \frac{1}{I_d}\right)^{-1}$$
- Metadata:** The slide footer includes the date "04.03.2021", the location "NSEC, Kolkata", and the slide number "17".

The Zoom interface includes a "Recording" indicator at the top left, a "View" icon at the top right, a participant list on the right with names like Angsuman Sarkar, SNEHA UPADHY..., Saheli Sarkhel, Toushik Santra, and SULBHA SINGH, and a control bar at the bottom with icons for Unmute, Start Video, Participants (36), Chat, Share Screen, Record, and Leave.

6.

Name/type of the event: IEEE EDS Webinar

Date of event: 4th March, 2021

Organizing Institute: **IEEE ED SBC NSEC**

No of participants: 35

Name of speakers: [ii] Dr. Navjeet Bagga, Assistant Professor, PDPM IIITDM Jabalpur, India

Title of Talk: Emerging Trends in Device Engineering for Improved Performances

Brief report:

ED Netaji Subhash Engineering College Student Branch Chapter in association with the GnZ Student Cell, Department of Electronics and Communication Engineering, on the occasion of World Engineering Day on March 4, 2021, organized an IEEE EDS one day webinar on "Emerging Trends in Device Engineering for Improved Performances" by Dr. Navjeet Bagga, Assistant Professor, PDPM IIITDM Jabalpur, India.

The online platform chosen for the event was ZOOM. The session started from 4:00pm and was for about 1hr. The event had about 35 participants, including IEEE EDS members, B.Tech students from 1st to 4th year of ECE, and Faculty advisors, as well as, the HOD of ECE, NSEC.

One of the student members hosted the event, who introduced our speaker, Dr. Bagga. Then, he started his session with a brief introduction of emerging devices such as Tunnel FETs and Negative Capacitance (NC) FETs. He also compared CMOS with TFETs and talked about the devices suitable for low power, low voltage applications. Dr. Bagga also introduced Quantum Computing. At the end of his presentation, there was an interactive Q/A session, where the students, as well as our faculty participated. Finally, our HOD Sir concluded the session.

The event was very beneficial for the participants, interested in this particular field of device engineering. Dr. Bagga cleared all the doubts of the attendees and has enlightened them in a path to pursue further studies in this as well. Thus, it was a successful event, in the presence of all interested participants.

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The screenshot shows a Google Meet session with a presentation slide. The slide title is "A Vast Field of Electrical Engineering". The diagram on the slide consists of several overlapping circles representing different domains of knowledge. A dashed blue circle highlights a central group of circles: "Semiconductor processing", "Materials science", "Solid-state physics", and "Semiconductor physics", with the caption "Core knowledge body of the device engineer" below it. Other circles include "chemistry", "Economics", "Device physics", "Transistor level", "circuits", "Higher level", "Information theory", and "Control theory". The meeting interface includes a "Recording" indicator, a speaker name "Navjeet Bagga is talking...", a "View" button, a list of participants (Angsuman Sarkar, SNEHA UPADHY..., Saheli Sarkhel, Toushik Santra, ILIKA MITRA), and a "Leave" button. The bottom control bar shows "Unmute", "Start Video", "Participants" (35), "Chat", "Share Screen", "Record", and "Leave".

7.

Name/type of the event: IEEE EDS Lecture

Date of event: 18th March, 2021

Organizing Institute: **IEEE ED SBC KGEC**

No of participants: 30

Name of Speaker: Dr. Manash Chanda, Meghnad Saha Inst. of Technology, Kolkata

Title of talk: Modeling of Nano-dimensional MOSFET-based Biosensors

Brief report:

Lecture talk on “Modeling of Nano-dimensional MOSFET-based Biosensors” by Dr. Manash Chanda, Meghnad Saha Inst. of Technology, Kolkata in online mode on 18-03-2021.

8.

Name/type of the event: Introductory Session

Date of event: 20th March, 2021

Organizing Institute: **IEEE ED SBC NSEC**

No of participants: 45

Topic: Benefits of IEEE EDS Student Branch Chapter

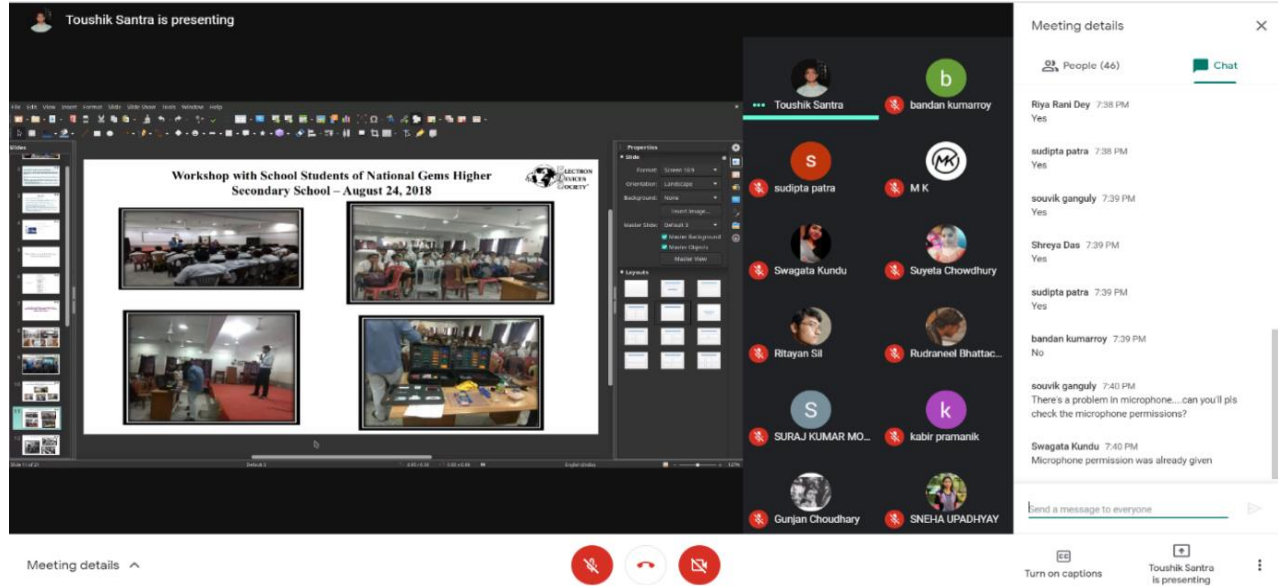
Brief report:

ED Netaji Subhash Engineering College Student Branch Chapter conducted an introductory session on the “Benefits of IEEE EDS Student Branch Chapter” on April 20, 2021 using Google Meet platform. More than 45 participants (BTech, ECE student from 1st and 2nd year) including seven members of our chapter had joined the event. Sneha Upadhyay (Chapter Chair, IEEE EDS SBC) and Toushik Santra (Chapter Vice Chair, IEEE EDS SBC) presented a detailed introduction on IEEE EDS student branch chapter and how it will be beneficial for them. During this event, they had shared PPT and presented some pictures of previous events. They motivated the participants to be a part of IEEE EDS. After that they

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interact with the participants and clear all their doubts related to this topic. A google form for membership survey was provided to collect participant interest and feedback. 28 participants have filled up the form till now and 8 of them confirmed to be a part of IEEE EDS SBC.

The event was very beneficial for students who are interested in this domain. The participants had the opportunity to know about IEEE EDS. We are still getting positive response from the participants.



9.

Name/type of the event: Outreach Activity

Date of event: 20th – 22nd March, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 23

Title of activity: 'Light of Learning' in Various areas of West Bengal

Brief report:

An outreach activity is organized among in NGOs, orphanages and underprivileged sections of society.

10.

Name/type of the event: IEEE EDS Lecture

Date of event: 30th March, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 64

Name of Speaker: Prof. Samit K. Ray, Director, S. N. Bose National Center for Basic Sciences

Title of talk: Beyond Moore's Law -Towards New Generation Semiconductor Devices

Brief report:

IEEE EDS Kolkata Chapter in association with the IEEE EDS Center of Excellence, Heritage Institute of Technology Kolkata organized a webinar on March 30, 2021 at 7 p.m. IST. Prof. Samit K. Ray, Director, S. N. Bose National Center for Basic Sciences spoke on the topic, 'Beyond Moore's Law -Towards New Generation Semiconductor Devices'. He spoke about the evolution of devices over the past decades. The

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attendees had a roller-coaster ride from point contact transistors to 1-D nanostructures and radial heterojunctions. The webinar was attended by 64 participants from across eastern India. Scholars, professionals in research organizations, academicians and students from 31 institutions attended this immensely informative lecture.

Beyond Moore's Law – Towards New Generation Semiconductor Devices

Samit K. Ray
S. N. Bose National Centre for Basic Sciences
&
Department of Physics, IIT Kharagpur

IEEE, EDS Lecture
Kolkata, 30th March, 2021

meet.google.com is sharing your screen. [Stop sharing](#) [hide](#)



Prof. Samit K. Ray, Director, S. N. Bose National Center for Basic Sciences being greeted by Dr. Mousiki Kar, Chair, IEEE EDS Kolkata Chapter and Prof. Basab Chaudhuri, Principal, Heritage Institute of Technology

11.

Name/type of the event: IEEE EDS Lecture

Date of event: 16th April, 2021

Organizing Institute: **IEEE ED SBC KGEC**

No of participants: 40

Name of Speaker: Prof. (Dr.) Debashis De, MAKAUT, West Bengal

Title of talk: Quantum Cellular Automata based Logic Design

Brief report:

Lecture talk on “Quantum Cellular Automata based Logic Design” by Prof. (Dr.) Debashis De, MAKAUT, West Bengal in online mode on 16-04-2021.

12.

Name/type of the event: IEEE EDS DL

Date of event: 17th April, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 89

Name of Speaker: Prof. Subramanian S. Iyer, Distinguished Professor in the Electrical Engineering Department at the University of California at Los Angeles

Title of talk: Flexible Hybrid Electronics 2.0

Brief report:

We started the series with a Distinguished Lecture by Prof. Subramanian S. Iyer, Distinguished Professor and Charles P. Reames Endowed Chair in the Electrical Engineering Department at the University of California at Los Angeles. He delivered a talk on ‘Flexible Hybrid Electronics 2.0’ on April 17, Saturday,

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7.30 pm (IST).

He spoke about the significant impact that Flexible Hybrid Electronics (FHE) is making in the area of medical and wellness electronics. 89 enthusiastic participants took part actively in the lecture session. The event was organized in association with, ED Heritage Institute of Technology Student Branch Chapter and IEEE Kolkata Section.

The image is a screenshot of a Zoom meeting. The main part of the screen shows a presentation slide titled "Flexible Hybrid Electronics 2.0". The slide features a QR code on the right side. Below the title, the presenter's name "Subramanian S. Iyer" is listed with his email address "s.s.iyer@ucla.edu". Below that, the affiliation "Center for Heterogeneous Integration and Performance Scaling" and the website "chips.ucla.edu" are provided. At the bottom of the slide, it says "University of California, Los Angeles, CA 90095". On the left side of the slide, there is a vertical banner with "UCLA" at the top and "CHIPS" at the bottom. The bottom of the slide has a blue footer with the UCLA Samueli School of Engineering logo, the text "IEEE Distinguished lecture Lecture April 17th 2021.", and the CHIPS logo. On the right side of the Zoom window, three participants are visible in a vertical stack: "You" (a woman with glasses), "atanu kundu" (a man), and "Subramanian Iyer" (a man).

DL Prof. Subramanian S. Iyer, being greeted by Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

13.

Name/type of the event: COVID-19 Awareness Program

Date of event: 19th April, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Brief report:

COVID-19 Awareness Program: A Seminar followed by Distribution of Masks and Sanitizers on 19 Apr 2021

14.

Name/type of the event: IEEE EDS DL

Date of event: 20th April, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 50

Name of Speaker: Prof. Navakanta Bhat, Professor, Indian Institute of Science, Bangalore and Chairperson, Centre for Nano Science and Engineering, IISc

Title of talk: Sensor Scaling for Intelligent and Smart Electronics

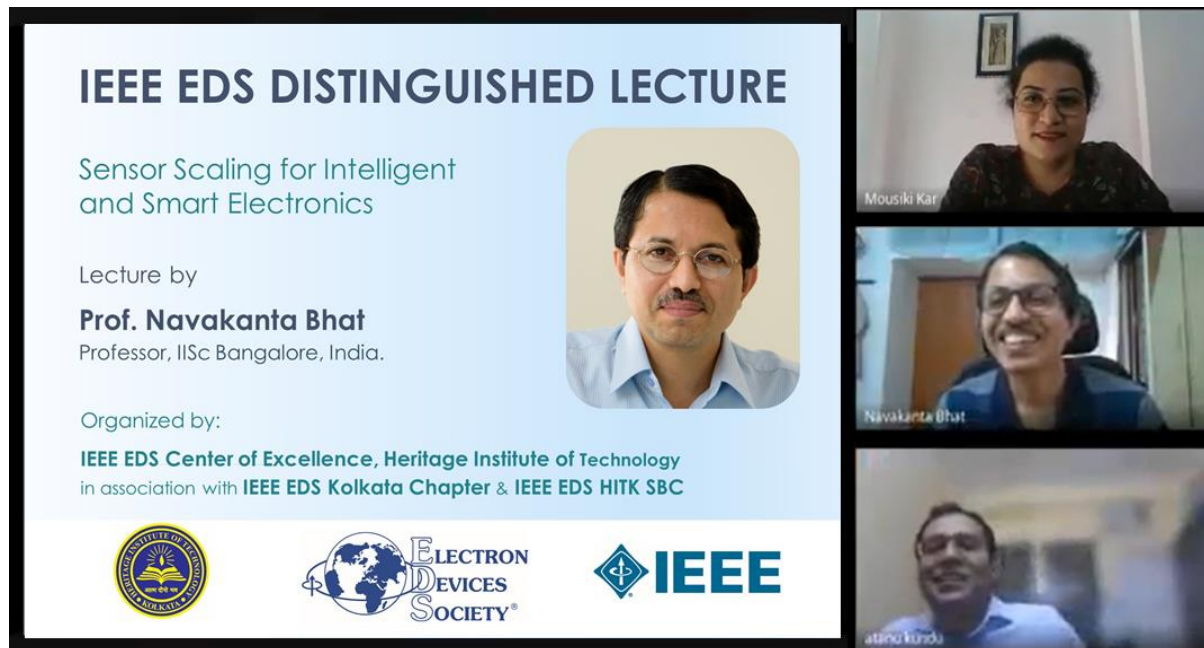
Brief report:

Our speaker was Prof. Navakanta Bhat, Professor, Indian Institute of Science, Bangalore and Chairperson, Centre for Nano Science and Engineering, IISc on April 20, Tuesday at 3.00 pm (IST).

He spoke on the topic 'Sensor Scaling for Intelligent and Smart Electronics'. Prof. Bhat discussed a holistic

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approach to manage the diversity and scaling issues of sensor blocks, akin to what was done in digital, analog and mixed signal electronics. The possibility of constructing an Electronic Nose on a Chip, with massively parallel sensor array architecture, compute and storage engines, possibly realized using heterogenous technologies was highlighted. The opportunities of integrating a variety of nanomaterials on Silicon platform, such as core-shell nanostructure, 2D materials and their hybrids were also discussed. The session was attended and enjoyed by 50 participants. The event was organized in association with, IEEE EDS Kolkata Chapter and ED Heritage Institute of Technology Student Branch Chapter.






IEEE EDS DISTINGUISHED LECTURE

Sensor Scaling for Intelligent and Smart Electronics

Lecture by
Prof. Navakanta Bhat
Professor, IISc Bangalore, India.

Organized by:
IEEE EDS Center of Excellence, Heritage Institute of Technology
in association with **IEEE EDS Kolkata Chapter & IEEE EDS HITK SBC**

Mousiki Kar

Navakanta Bhat

atanu kundu

DL Prof. Navakanta Bhat, being greeted by Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

15.

Name/type of the event: IEEE EDS Lecture

Date of event: 26th April, 2021

Organizing Institute: **IEEE ED SBC KGEC**

No of participants: 35

Name of Speaker: Dr. Swapnadip De, Meghnad Saha Inst. of Technology, Kolkata

Title of talk: Modeling of Short-Channel Effects of Nanoscale MOSFETs

Brief report:

Lecture talk on “Modeling of Short-Channel Effects of Nanoscale MOSFETs” by Dr. Swapnadip De, Meghnad Saha Inst. of Technology, Kolkata in online mode on 26-04-2021.

16.

Name/type of the event: IEEE EDS Lecture

Date of event: 1st May, 2021

Organizing Institute: **IEEE ED SBC HIT**

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No of participants: 95

Name of Speaker: Prof. Kaushik Roy, Purdue University

Title of talk: Re-Thinking Computing with Neuro-Inspired Learning: Devices, Circuits, and Systems Brief report:

The month of May started off with a lecture delivered by Prof. Kaushik Roy from Purdue University on May 01, Saturday, 7.30 pm (IST). He spoke on the topic, 'Re-Thinking Computing with Neuro-Inspired Learning: Devices, Circuits, and Systems'.

He described his recent work on neuromorphic computing with spike based learning and the design of underlying hardware that can lead to quantum improvements in energy efficiency with good accuracy. The lecture was attended by 95 participants. The event was organized in association with, ED Heritage Institute of Technology Student Branch Chapter and IEEE Kolkata Section.



DL Prof. Kaushik Roy, being greeted by Dr. Susmita Mitra, Chair, Kolkata Section, Dr. Atanu Kundu, Chapter Advisor ED HITK SBC and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

17.

Name/type of the event: IEEE EDS Lecture

Date of event: 8th May, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 80

Name of Speaker: Prof. Jesús A. del Alamo, Professor at Massachusetts Institute of Technology (MIT)

Title of talk: 3D Integration: Above and Beyond Moore's Law

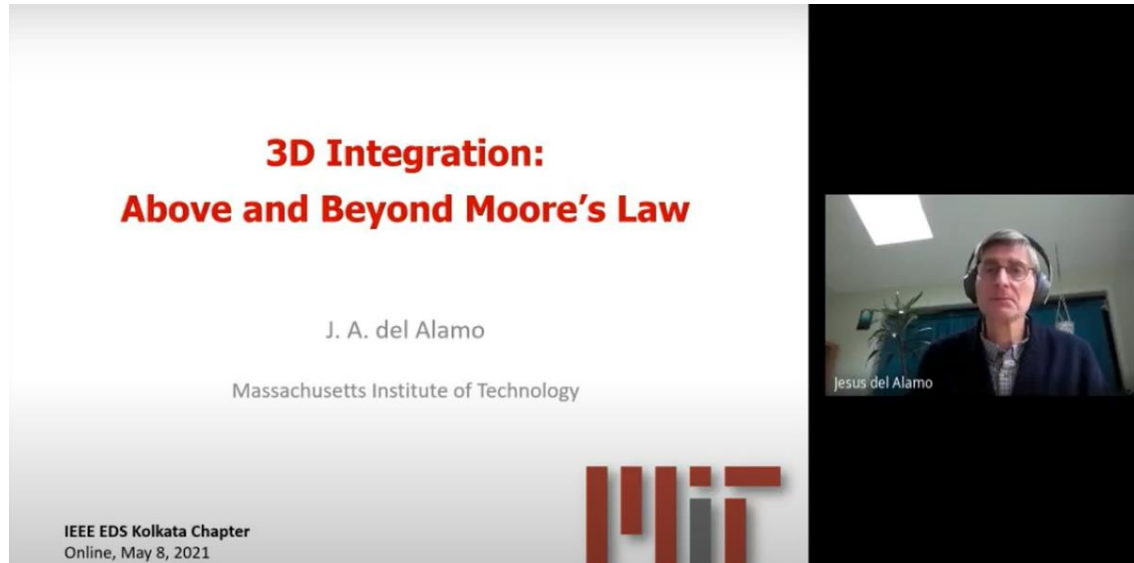
Brief report:

The lecture was delivered by Prof. Jesús A. del Alamo, Professor at Massachusetts Institute of Technology (MIT) and Director of the Microsystems Technology Laboratories. Prof. Alamo, spoke on the topic '3D Integration: Above and Beyond Moore's Law' on May 08, 2021, Saturday, at 7 p.m. IST.

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Three-dimensional (3D) integration which is an emerging technology that can form highly integrated systems by vertically stacking and connecting various materials, technologies and functional components together was discussed. The potential benefits of 3D integration can vary depending on approach; they include multifunctionality, increased performance, reduced power, small form factor, reduced packaging, increased yield and reliability, flexible heterogeneous integration and reduced overall costs.

80 attendees from across the country enjoyed his lucid and informative presentation. The event was organized in association with, IEEE EDS Kolkata Chapter.



DL Prof. Jesús A. del Alamo delivering his lecture

18.

Name/type of the event: International Conference

Date of event: 19th – 20th May, 2021

Organizing Institute: **IEEE ED SBC KGEC**

No of participants: 450

Brief report:

The 4th International Conference “Devices for Integrated Circuit (DevIC 2021)” was held from 19 – 20th May 2021, organized by IEEE Kalyani Government Engineering College (KGEC) Student Branch Chapter in association with Department of Electronics and Communication Engineering (ECE), KGEC and technically co-sponsored by IEEE EDS Kolkata Chapter. Because of COVID-19 situation, the DevIC 2021, initially planned to be held at Kalyani (West Bengal, India), became a virtual conference.

Each year this international conference brings together more than 200 experts working in the area of semiconductor based electronic devices. This year 395 participants from 4 continents (Europe (10 from 4 countries), Asia (380 from 4 countries), Africa (2 from 1 country) and North America (3 from USA) attended the conference.

The inaugural ceremony was presided by Prof. Angsuman Sarkar (General Chair of the Conference). Among the august fellows, Sri Pranabesh Das, honourable Director of Technical Education, Govt of West Bengal, and Prof. Saikat Maitra, vice-chancellor, Maulana Abul Kalam Azad University of Technology, West Bengal and Prof. S. Das, Principal, KGEC were also present. The conference has benevolently exhibited their humanitarian activity when Prof. Angsuman Sarkar, General Chair- DevIC 2021, donated a token amount of

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Rs. Fifty Thousand to the West Bengal State Emergency Relief Fund for prevention and control of situation arising out of COVID-19.

The 2021 edition of DevIC included 6 plenary talks and 144 regular contributions. Live presentation was arranged for all the plenary talks and regular presentations. After presentation, discussions took place as direct conversations between the presenters/authors with the session chairs/audiences.

The slide features a red vertical bar on the left with the Ohio State University logo. The main title is in blue text: "Si-based Resonant Interband Tunnel Diodes for Quantum Functional and Multi-level Circuitry (Mixed-Signal, Logic, and Low Power Embedded Memory) to Extend CMOS". Below the title, the speaker's name "Paul R. Berger" is in blue, followed by his affiliations in red and black text: "Department of Electrical & Computer Engineering", "Department of Physics", "The Ohio State University", and "Columbus OH, 43210 USA". A portrait of Paul R. Berger is on the right. At the bottom, a grey bar contains "NOEL" in blue, "DevIC - Kalyani, India" in black, and "May 19, 2021" in black.

19.

Name/type of the event: Alumni talk

Date of event: 22nd May, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Ms. Anwesha Lahiri, ASIC Design Engineer, Open Silicon

Title of talk: Journey from MSIT to Open Silicon

No of participants: 76

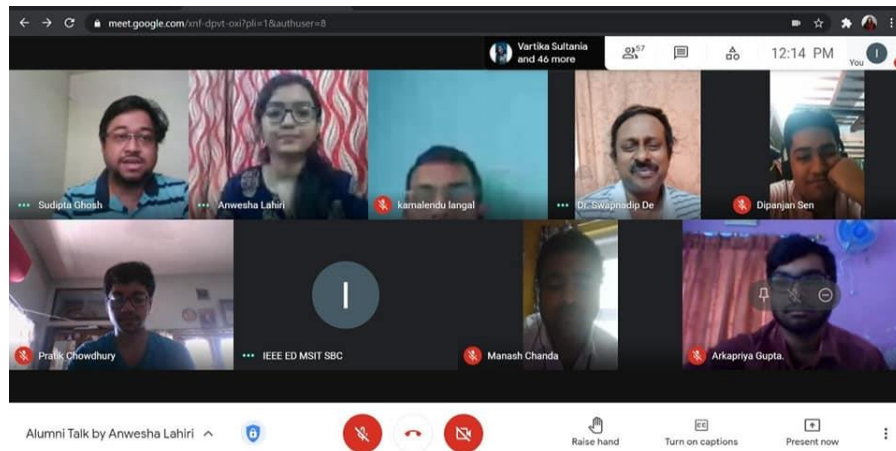
Brief report:

IEEE ED MSIT SBC in association with IEEE ED SB & Department of ECE, MSIT, Kolkata organized an Alumni Talk Program by Ms. Anwesha Lahiri, an alumna of the Department of ECE (2015-19), MSIT, Kolkata on 22nd May, 2021 at 11:00AM over Google-Meet. She is currently working in Open Silicon as an ASIC Design engineer. The topic of her talk was "JOURNEY FROM MSIT TO OPEN SILICON".

Mr. Sudipta Ghosh, Faculty Member, Department of ECE, gave the introductory speech, which was followed by a speech of Dr. Manash Chanda, HoD, Dept. of ECE, MSIT and Chapter Advisor, IEEE ED

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MSIT SBC. About 76 (18 IEEE student members) participants were present during the session. It was an extremely beneficial talk and engaging talk where the students got the knowledge of how to cultivate themselves in the upcoming days.



Alumni Talk Program by Ms. Anwesha Lahiri

20.

Name/type of the event: IEEE EDS DL

Date of event: 22nd May, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Name of speaker: Prof. Ajit Kumar Panda, ECoE, Bhubaneswar, India

Topic: Semiconductor Devices for 5G Communication Technology

Brief report:

IEEE Distinguished Lecture by Prof. Ajit Kumar Panda, ECoE, Bhubaneswar, India on 22 May 2021 virtually on talk title: Semiconductor Devices for 5G Communication Technology.

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Virtual mode of presentation by Prof. Ajit Kumar Panda (DL), Prof. F. A. Talukdar (Branch Counselor), Dr. T. R. Lenka (Chapter Advisor), Dr. Koushik Guha (Secretary) were present online

21.

Name/type of the event: IEEE EDS DL

Date of event: 29th May, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 179

Name of Speaker: Prof. Supriyo Datta, Purdue University

Title of talk: Computing with p-Bits: Between a Bit and a q-Bit

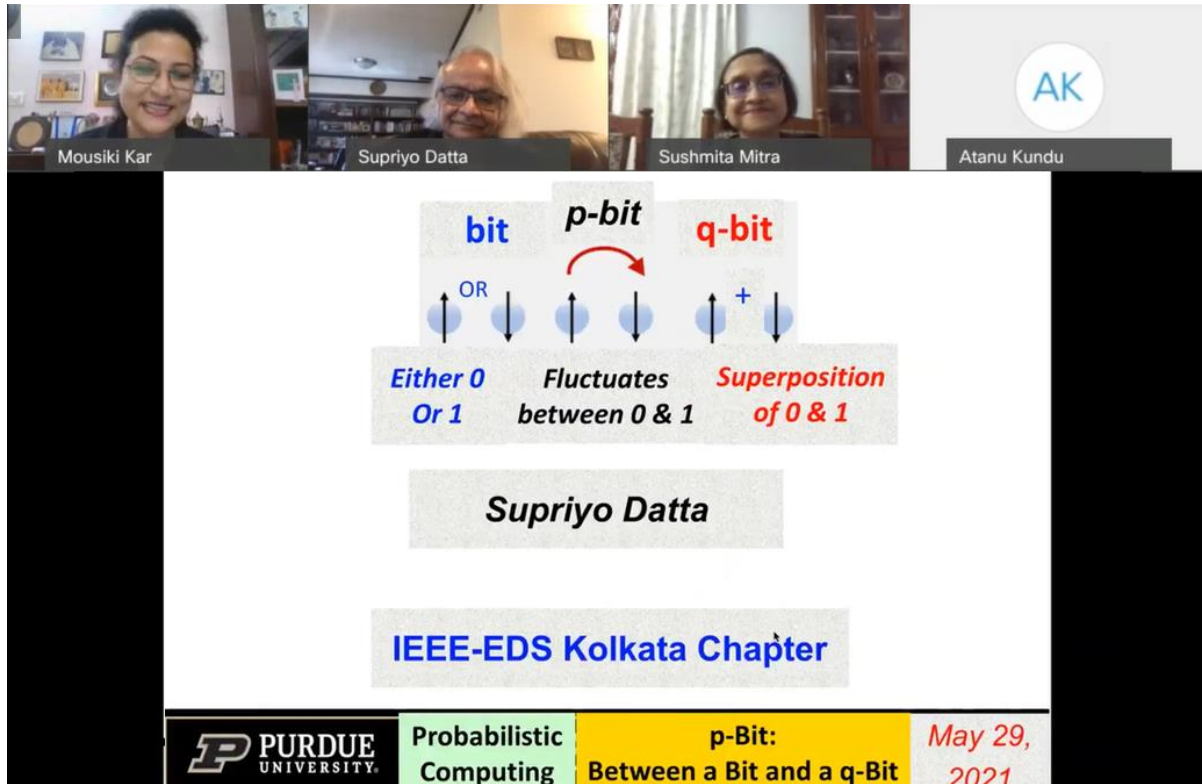
Brief report:

We wound up the month of May with a distinguished lecture delivered by Prof. Supriyo Datta from Purdue University on the topic 'Computing with p-Bits: Between a Bit and a q-Bit' on May 29, Saturday, 7.30 pm (IST).

He discussed that the awesome power of quantum computing comes from exploiting negative probabilities, which in turn requires stringent experimental conditions to protect the phase. Prof. Supriyo Datta explained that a probabilistic computer by contrast can be built with existing technology to operate at room temperature and has been demonstrated experimentally.

179 participants attended the talk which was organized in association with IEEE Kolkata Section, IEEE EDS Kolkata Chapter and ED Heritage Institute of Technology Student Branch Chapter.

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DL Prof. Supriyo Datta, being greeted by Dr. Susmita Mitra, Chair, Kolkata Section and Dr. Mousiki Kar, Co-ordinator IEEE EDS CoE, HITK and Chair, EDS Kolkata Chapter

22.

Name/type of the event: Alumni talk

Date of event: 29th May, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Mr. Bitan Mallik, Research Associate in Fraunhofer, Germany

Title of talk: Journey from MSIT to Fraunhofer IIS

No of participants: 92

Brief report:

IEEE ED MSIT SBC in association with IEEE ED SB & Department of ECE, MSIT, Kolkata organized an Alumni Talk Program by Mr. Bitan Mallik, an alumnus of the Department of ECE (2009-13), MSIT, Kolkata on 29th May, 2021 at 3:30PM IST over ZOOM. The topic of his talk was "JOURNEY FROM MSIT TO FRAUNHOFER IIS".

Dr. Swapnadip De, Faculty Member, Department of ECE, and the Chapter Advisor of IEEE MSIT SB coordinated the entire session. About 92 (28 IEEE student members) participants were present during the session.

Mr. Bitan Mallik is currently working as a Research Associate in Fraunhofer, Germany. It was an extremely benefiting talk where the students got to understand of how to cultivate themselves in the research and academic field in their future. We were extremely delighted to have Mr. Mallik with us and would like to hear more from him in the upcoming days.

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Alumni Talk Program by Mr. Bitan Mallik

23.

Name/type of the event: Alumni talk

Date of event: 5th June, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Mr. Samrat Manna, Associate Consultant in TCS, Southampton-UK

Title of talk: Journey from MSIT to TCS Southampton-UK

No of participants: 106

Brief report:

IEEE ED MSIT SBC in association with IEEE ED SB & Department of ECE, MSIT, Kolkata organized an Alumni Talk Program by Mr. Samrat Manna, an alumnus of the Department of ECE, MSIT, Kolkata on 5th June 2021 at 3:30PM IST over ZOOM. The topic of his talk was "JOURNEY FROM MSIT TO TCS Southampton-UK".

Dr. Swapnadip De, Faculty Member, Department of ECE, and the Chapter Advisor of IEEE MSIT SB coordinated the entire session. About 106 (32 IEEE student members) participants were present during the session.

Mr. Manna is currently working as an Associate Consultant in TCS, Southampton-UK. It was an extremely important talk where the students got the opportunity to know and understand of how to prepare themselves in the research, software and academic field for their future. We were extremely happy to have Mr. Manna as our Speaker on that day and would like to hear more from him in the future.

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Alumni Talk Program by Mr. Samrat Manna

24.

Name/type of the event: IEEE EDS Lecture

Date of event: 5th June, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 97

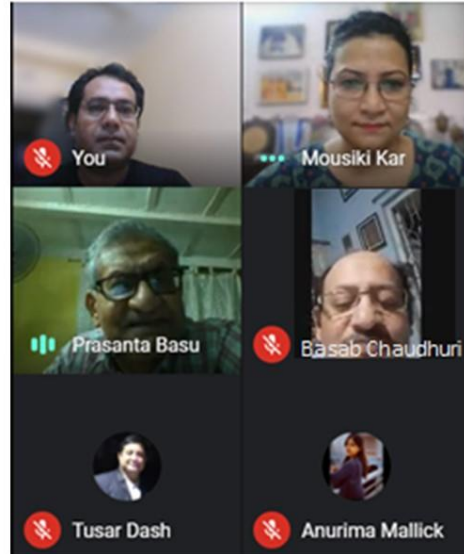
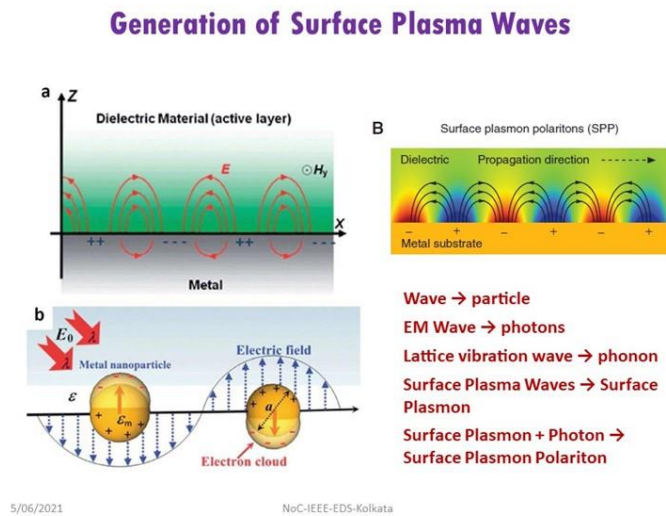
Name of Speaker: Prof. Prasanta Kumar Basu, Ex-Professor, Institute of Radio Physics and Electronics, University of Calcutta

Network-on-Chip: A Journey from Electronic to Electronic-Photonic to Future Plasmonic Systems

Brief report:

A lecture was delivered by Prof. Prasanta Kumar Basu, Ex-Professor, Institute of Radio Physics and Electronics, University of Calcutta on June 05, 2021 at 7 p.m. IST. The topic of the webinar was 'Network-on-Chip: A Journey from Electronic to Electronic-Photonic to Future Plasmonic Systems'. Prof. Prasanta Kumar Basu discussed how plasmonics, in particular surface plasmonics, allow realization of sub wavelength sized devices and therefore seems to be the ultimate solutions for network-on-chip (NOC). The very small propagation length of plasmonic waves can be overcome by Surface Plasmon Amplification by Stimulated Emission of Radiation (SPASER) replacing nanolasers used in communication and networking. Th talk was attended by 97 participants.

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Prof. Prasanta Kumar Basu delivering his lecture

25.

Name/type of the event: IEEE EDS DL

Date of event: 12th June, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Name of the speaker: Prof. Elena Gnani, University of Bologna, Italy

Title of talk: Tunnel FETs: Device Physics and Realizations

Brief report:

Prof. Elena Gnani, University of Bologna, Italy on 12 June 2021 virtually on talk title: Tunnel FETs: Device Physics and Realizations

26.

Name/type of the event: IEEE EDS Webinar

Date of event: 12th June, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 68

Name of Speakers: [i] Dr. Mousiki Kar, Chair, IEEE EDS Kolkata Chapter

[ii] Dr. Lillykutty Jacob, Professor, National Institute of Technology Calicut

Title of talk: [i] Benefits of IEEE Membership

[ii] 5G Cellular Networks

Brief report:

A webinar was organized jointly with IEEE Membership Development Committee (MDC), Kolkata section and IEEE Joint CSS-IMS Kolkata Chapter on June 12, 2021 at 5:30 pm IST. Dr. Mousiki Kar, Chair, IEEE EDS Kolkata Chapter delivered a talk on the 'Benefits of IEEE Membership'. She spoke about multifaceted benefits of joining the IEEE community of technology and engineering professionals, who are united by a common desire to continuously learn, interact, collaborate, and innovate. She also highlighted that the

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resources and opportunities needed to keep on top of changes in technology, networking opportunities with other professionals and getting in touch with the next generation of engineers and technologists would be at one's fingertips as an IEEE member.

This was followed by a session titled "5G Cellular Networks" delivered by Dr. Lillykutty Jacob, Professor, National Institute of Technology Calicut where the features of 5G such as faster connectivity speeds, ultra-low latency and greater bandwidth is advancing societies, transforming industries and dramatically enhancing day-to-day experiences were discussed. The sessions were attended by 68 participants.



BENEFITS OF IEEE MEMBERSHIP

Presented by: Dr. Mousiki Kar
Chair, IEEE Electron Devices Society, Kolkata Chapter
Coordinator, IEEE EDS Center of Excellence, HITK
Faculty, Department of ECE, Heritage Institute of Technology

1

IEEE
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for Humanity

Mousiki Kar

Dr. Mousiki Kar, Chair, IEEE EDS Kolkata Chapter, delivering her membership development talk

27.

Name/type of the event: IEEE EDS Lecture

Date of event: 19th June, 2021

Organizing Institute: **IEEE ED SBC MSIT**

No of participants: 83

Name of Speaker: Mr. Sumilak Chaudhury, Design Engineer II, Cadence Design Systems India Pvt Ltd
Network-on-Chip: Visualizing Transient Response in Passive Circuit Components

Brief report:

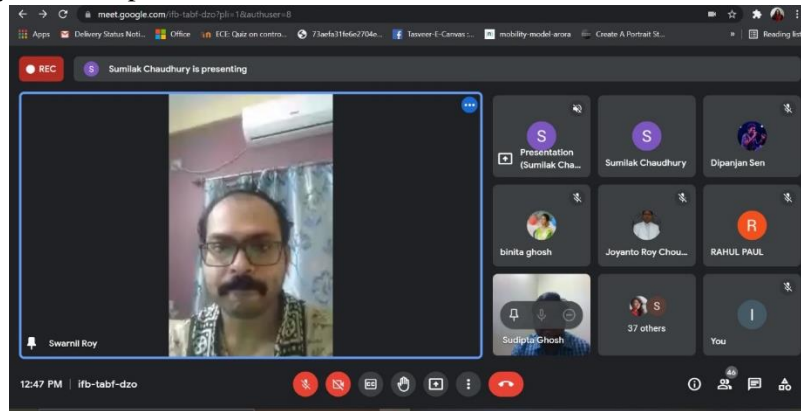
IEEE ED MSIT SBC in association with IEEE SSCS Kolkata Chapter, IEEE MSIT SB and Department of ECE, MSIT, Kolkata organized an IEEE EDS Technical Talk Program by Mr. Sumilak Chaudhury, Design Engineer II, Cadence Design Systems India Pvt Ltd on 19th June, 2021 at 11:00AM over Google-Meet.

Prof. Swarnil Roy, Secretary, IEE SSCS Kolkata Chapter and Faculty Member, Department of ECE, MSIT, Kolkata and Prof. Sudipta Ghosh, Faculty Member, Department of ECE, MSIT coordinated the entire session. Students from the Departments of Electrical, Computer Science and Electronics and Communication Engineering were present to listen to this extremely beneficial talk. Dr. Manash Chanda, Chapter Advisor, IEEE ED MSIT SBC and HoD, Department of ECE, MSIT gave the introductory speech. The topic was "Visualizing Transient Response in Passive Circuit Components" which is one of the most fundamental topics for all the students.

About 83 participants (18 IEEE Student Members) were present during the session. The session was indeed very engaging and definitely extremely helpful for all the participants. The organizers were very lucky to

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have Mr. Chaudhury as their Speaker and would like to hear more from him.



Prof. Swarnil Roy, coordinating the Technical Talk Program by Mr. Chaudhury

28.

Name/type of the event: IEEE EDS DL

Date of event: 19th June, 2021

Organizing Institute: **IEEE ED SBC MSIT**

No of participants: 50

Name of Speaker: Prof. Ioannis (John) Kymissis , Professor of Electrical Engineering, Columbia University, New York, USA

Network-on-Chip: Electronics on Anything: How Thin Film Electronics can Instrument the World

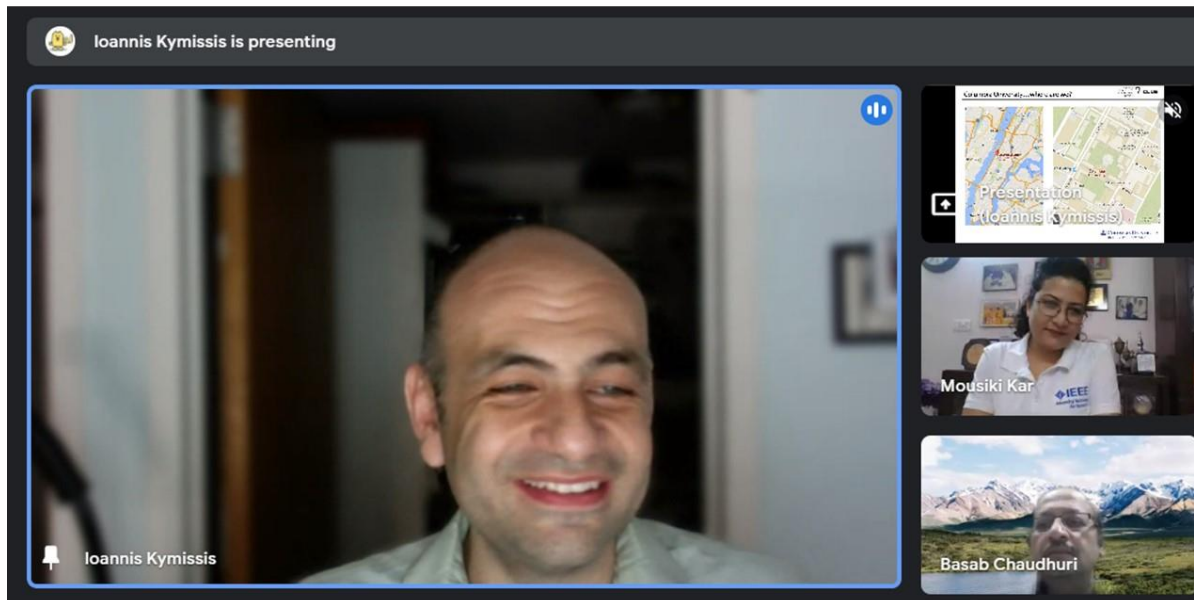
Brief report:

The Month of June was graced by a Distinguished lecture by Prof. Ioannis (John) Kymissis , Professor of Electrical Engineering in the Department of Electrical Engineering at Columbia University, New York, USA. He spoke on the topic ‘Electronics on Anything: How Thin Film Electronics can Instrument the World’ on June 19, 2021 at 7 p.m. IST.

In his lecture Prof. Kymissis discussed how his group has been working on the hybrid integration of organic semiconductors, thin film piezoelectrics, and laser-recrystallized materials with active substrates to implement a range of new functionalities. Devices they have developed include large area and miniature microphones, pressure sensors, active matrix flexible electrostrictive actuators, miniature spectrometers, and activematrix micro-LED displays. These approaches unlock new applications in healthcare, sensing, displays, soft and highly instrumented robotics, transportation, and communications.

The lecture was enjoyed by 50 attendees. The event was organized in association with IEEE EDS Kolkata Chapter.

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DL Prof. Ioannis (John) Kymissis delivering his lecture

29.

Name/type of the event: IEEE EDS Lecture

Date of event: 26th June, 2021

Organizing Institute: **IEEE ED SBC KGEC**

No of participants: 35

Name of Speaker: Dr. Urmila Kar, Professor, Education & Management, NITTTR, Kolkata

Title of talk: National Education Policy

Brief report:

One day seminar on “National Education Policy”, delivered by Dr. Urmila Kar (Professor, Education & Management, NITTTR, Kolkata) at Kalyani Government Engineering College organized by IEEE EDS KGEC SBC in association with IQAC cell, KGEC held on 26.06.2021 in Google Meet platform in online mode from 3:00 pm. No of Participants: 35

30.

Name/type of the event: IEEE EDS DL

Date of event: 29th June, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

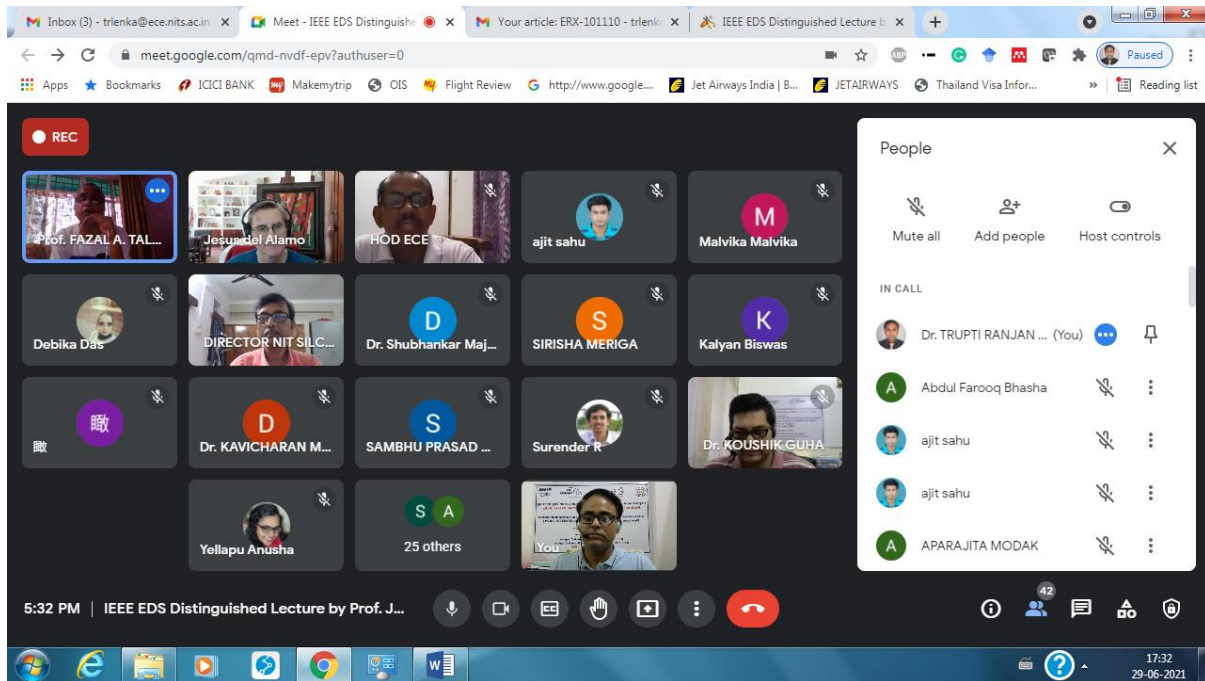
Name of speaker: Prof. Jesús A. del Alamo, Microsystems Technology Laboratories, Massachusetts Institute of Technology, USA

Topic: 3D Integration: Above and Beyond Moore’s Law

Brief report:

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IEEE Distinguished Lecture by Prof. Jesús A. del Alamo, Microsystems Technology Laboratories, Massachusetts Institute of Technology, USA on 29 June 2021 virtually on talk title: 3D Integration: Above and Beyond Moore's Law.



Virtual mode of presentation by Prof. Jesús A. del Alamo, MIT, USA, Prof. Sivaji Bandyopadhyay, Director, NIT Silchar, Prof. K. L. Baishnab, HoD, ECE Dept., Prof. F. A. Talukdar (Branch Counselor), Dr. T. R. Lenka (Chapter Advisor), Dr. Koushik Guha (Secretary) were present online

31.

Name/type of the event: IEEE EDS DL

Date of event: 30th June, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

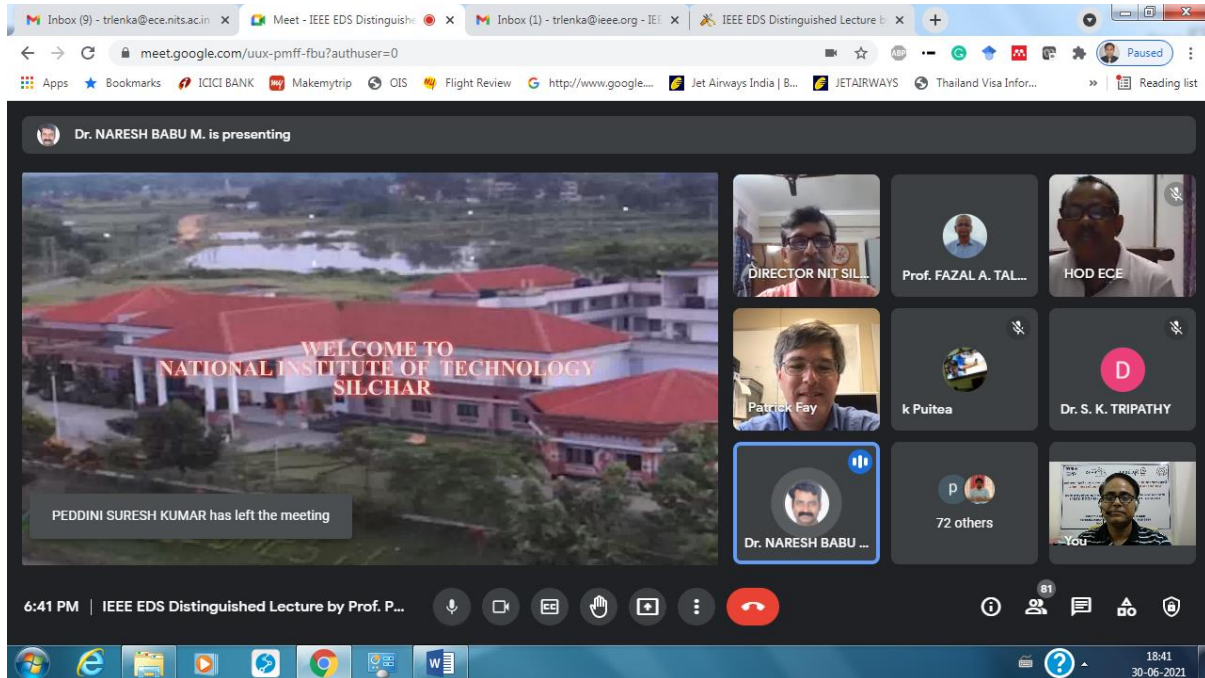
Name of speaker: Prof. Patrick Fay, Department of Electrical Engineering, University of Notre Dame, IN, USA

Title of talk: Advances in III-N Devices for 5G and Beyond

Brief report:

IEEE Distinguished Lecture by Prof. Patrick Fay, Department of Electrical Engineering, University of Notre Dame, IN, USA on 30 June 2021 virtually on talk title: Advances in III-N Devices for 5G and Beyond

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Virtual mode of presentation by Prof. Patrick Fay, University of Notre Dame, USA, Prof. Sivaji Bandyopadhyay, Director, NIT Silchar, Prof. K. L. Baishnab, HoD, ECE Dept., Prof. F. A. Talukdar (Branch Counselor), Dr. T. R. Lenka (Chapter Advisor) were present online

32.

Name/type of the event: Alumni talk

Date of event: 3rd July, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Mr. Dipanjan Sen, Research Scholar at Materials Research Institute of Pennsylvania State University

Title of talk: Journey from MSIT to PENN STATE UNIVERSITY

No of participants: 94

Brief report:

IEEE ED MSIT SBC in association with IEEE ED SB & Department of ECE, MSIT, Kolkata organized an Alumni Talk Program by Mr. Dipanjan Sen, an alumnus of the Department of ECE, MSIT and a Postgraduate Student of VLSI Design and Microelectronics Technology, Jadavpur University on 3rd July 2021 at 11:00 AM IST over GOOGLE MEET. The topic of his talk was "JOURNEY FROM MSIT TO PENN STATE UNIVERSITY". Mr. Sen has currently joined as a Graduate Teaching Assistant and a PhD candidate in Materials Research Institute of Pennsylvania State University.

Prof. Swarnil Roy and Prof. Sharmi Ganguly, Faculty Members, Department of ECE, coordinated the entire session. About 94 (24 IEEE student members) participants were present during the session.

It was an extremely important talk where the students could know and understand how to prepare themselves in the research and academic field in and outside the country for their future.

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Alumni Talk Program by Mr. Dipanjan Sen

33.

Name/type of the event: IEEE EDS Technical talk

Date of event: 12th July, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Prof. (Dr.) Raghunath Battacharya, Advisor at DST-IEST Solar PV Hub at IEST, Shibpur

Title of talk: MY SCIENTIFIC JOURNEY FOR LAST HALF A CENTURY

No of participants: 94

Brief report:

IEEE ED MSIT SBC in association with CARREST and Research & Development Cell, Meghnad Saha Institute of Technology, Research & Development Cell, Netaji Subhash Engineering College and IEEE CS MSIT organized an IEEE EDS Technical Talk Program on "MY SCIENTIFIC JOURNEY FOR LAST HALF A CENTURY" by Prof. (Dr.) Raghunath Battacharya on 12th July 2021 at 6:00 pm.

Dr. Bhattacharya is currently the Advisor at DST-IEST Solar PV Hub at IEST, Shibpur. He was formerly a Scientist at National Physical Laboratory, New Delhi.

In his talk, Dr. Bhattacharya described his journey through the research world for the past half-century. It was indeed a very overwhelming talk for all the attendees. More than 60 participants (12 IEEE Members) were present during the session. Prof. Rana Majumdar, Faculty Member, Dept. of CSE, MSIT coordinated the entire session. Prof. (Dr.) Ankur Ganguly, Principal, MSIT and Branch Counselor, IEEE MSIT SB gave the introductory speech which was followed by a speech by Prof. (Dr.) Utpal Ganguly. It was followed by a speech by Prof. Amal Kumar Ghosh who vividly described the various topics related to R&D Cell. The talk ended with a "Vote of Thanks" by Dr. Manash Chanda, HoD, Dept. of ECE, MSIT and Chapter Advisor of IEEE ED MSIT SBC.

It was indeed our pleasure to have Dr. Bhattacharya with us on that day.

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Dr. Bhattacharya giving his speech

34.

Name/type of the event: Workshop

Date of event: 14th- 15th July, 2021

Organizing Institute: **IEEE ED SBC MSIT**

Name of speaker: Mr. Dipanjan Sen, Research Scholar at Materials Research Institute of Pennsylvania State University

Title of workshop: A 2-Day Workshop on Semiconductor Device Modeling & Simulation

No of participants: 54

Brief report:

IEEE ED MSIT SBC in association with IEEE MSIT SB and Department of ECE, MSIT, Kolkata organised "A 2-Day Workshop on Semiconductor Device Modeling & Simulation" by Mr. Dipanjan Sen, an Alumnus of the Department and a PhD Student at Penn State University on 14th and 15th July, 2021 from 6:30 PM.

Prof. Swarnil Roy and Prof. Sudipta Ghosh, Faculty Members, Department of ECE, coordinated the entire session. About 54 (16 IEEE student members) participants were present during the workshop. It was an extremely important session where the students were taught about the importance of using TCAD tools. Hands on training on device modeling and simulations were provided to all the students. It was an engaging session where all the participants were extremely benefited.

35.

Name/type of the event: IEEE EDS DL

Date of event: 22nd July, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Name of the speaker: Prof. Joachim N. Burghartz, IMS CHIPS, Stuttgart

Title of talk: GaN-O-Si Technology for Power, RF and Specials

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Brief report:

Prof. Joachim N. Burghartz, IMS CHIPS, Stuttgart on 22nd July 2021 virtually on talk title: GaN-O-Si Technology for Power, RF and Specials

36.

Name/type of the event: Workshop

Date of event: 26th- 30th July, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Title of workshop: Optimization and Intelligence in Electronics Engineering Applications

Brief report:

International Workshop on Optimization and Intelligence in Electronics Engineering Applications (OIEEA-2021) from 26th to 30th July 2021 through virtual mode.

37.

Name/type of the event: IEEE EDS DL

Date of event: 4th August, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Name of the speaker: Prof. Anisul Haque, East West University Bangladesh

Title of talk: Bifacial Photovoltaics

Brief report:

Prof. Anisul Haque, East West University Bangladesh on 04th August 2021 virtually on talk title: Bifacial Photovoltaics

38.

Name/type of the event: Membership Awareness Program

Date of event: 19th August, 2021

Organizing Institute: **IEEE ED SBC MSIT**

No of participants: 42

Brief report:

IEEE ED MSIT SBC in association with IEEE COMSOC MSIT SBC and Department of ECE, MSIT, Kolkata organised a “Membership Awareness Program” on 19th August, 2021 at 3:30 PM. The program was conducted in order to get a precise overview of the benefits of joining IEEE as well as to increase the membership count of the ED Student Branch Chapter. Dr. Manash Chanda, chapter advisor of IEEE ED MSIT SBC and HoD, Dept. of ECE, MSIT and Dr. Chandi Pani, chapter advisor of IEEE COMSOC MSIT SBC conducted the session. About 42 participants were present who were highly benefited by the session. The session was held over GOOGLE MEET. Total 12 students from the first year have taken the membership of IEEE EDS after the event. Other students were also immensely benefitted and motivated by the talk of both the Advisors.

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39.

Name/type of the event: Faculty Development Program

Date of event: 20th – 24th August, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Title of the Program: Recent Trends in Bio-MEMS and Medical Micro Devices: From Device to Application

Brief report:

Five-Day Faculty Development Program on “Recent Trends in Bio-MEMS and Medical Micro Devices: From Device to Application” during 20-24 Aug 2021

40.

Name/type of the event: IEEE EDS DL

Date of event: 26th August, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Name of the speaker: Prof. Adam W. Skorek, University of Quebec, Canada

Title of talk: High Performance Quantum Computing in Nanoelectronics

Brief report:

Prof. Adam W. Skorek, University of Quebec, Canada on 26th August 2021 virtually on talk title: High Performance Quantum Computing in Nanoelectronics

41.

Name/type of the event: Summer School

Date of event: 1st – 5th September, 2021

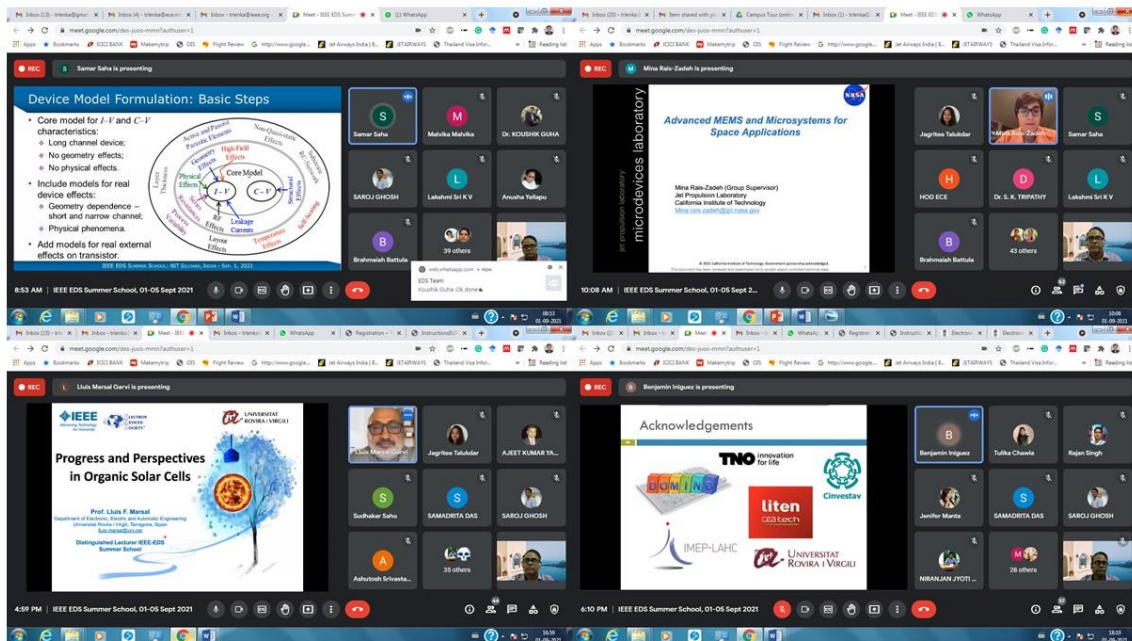
Organizing Institute: **IEEE ED SBC NIT Silchar**

Brief report:

IEEE EDS Summer School funded by IEEE EDS during 01-05 September 2021 virtually. In this School 20 Distinguished Lectures were very well organised by EDS DLs and Invited speakers as follows. EDS Distinguished Lectures by Prof. Samar Saha, Santa Clara University, USA on talk title: Physics of Microelectronics Device Models for VLSI Circuit Design, by Prof. Mina Rais-Zadeh, University of Michigan, USA on talk title: Advanced MEMS and Microsystems for NASA application, by Prof. Lluís F. Marsal, Universitat Rovira Virgila, Spain on talk title: Progress and Perspectives in Organic Solar-Cells, by Prof. Benjamin Iniguez, University rovira, Spain on talk title: Identification and modelling of low-frequency noise sources in Organic and IGZO TFTs, by Prof. Victor Veliadis, North Carolina State University, USA on talk title: Sic power Device high impact applications and path to commercialization, by Prof. Lan FU, ANU Australia on talk title: III-V Semiconductor Nanowires Materials, Devices and Applications, by Prof. Tibor Grasser, TU Wien Austria on talk title: Insulators for 2D Nanoelectronics, by Prof. Durga Misra, NJIT USA on talk title: Reduction of Switching Power IN RRAM Devices for In-Memory Computing Hardware, by Dr. Andi Kerber, Intel on 3rd September 2021 virtually on talk title: Reliability of Metal Gate/ High-K CMOS device, by Prof. A. K. Panda, ECoE, BBSR, India on talk title: RF components for 5G Communication Technologies, by Prof. Arokia Nathan, University of Cambridge, UK on talk title: Ultralow Power Flexible Electronics, by Prof. Michael Shur, RPI USA on talk title: State of the Art Silicon Very Large Scale Integrated Circuits industrial Face of Nanotechnology, by Prof. Hieu. P.T. Nguyen, NJIT, USA (invited speaker) on talk title: III-Nitride Nanowire LEDs Material Device Fabrication, Characterization and

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Applications, by Prof. G. N. Dash, SU, India on talk title: Novel architecture graphene devices to mitigate scaling challenges, by Dr. P. Sushitha Menon, UKM, Malaysia (invited speaker) on talk title: Kretchmann-based Plasmonic Biosensors, by Prof. Frank Schwierz, Technische Universitat Ilmenau, Germany on talk title: The prospects of 2D materials for future electronics, by Prof. Ioannis (John) Kymissis, Columbia University SEAS, NY, USA on 5th September 2021 virtually on talk title: Introduction to MicroLEDs, by Prof. Paul R. Berger, Ohio State University, USA on talk title: AlN/GaN RTD with Unipolar Light Emission, by Prof. Sorin Cristoloveanu, IMEP- INP Grenoble MIMATEC, France on talk title: Revolutionary nanotransistors with electrostatic doping, by Prof. Mikael Ostling KTH, Stockholm, Sweden on talk title: SiC Device Tech for power devices and high temperature applications. In this school 80 participants comprising of EDS members and non-members including international participant, successfully completed the course. The organisation of the EDS Summer School was a great and grand success.



DL Talks by Prof. Samar Saha, Prof. Mina Rais-Zadeh, Prof. Lluís F. Marsal and Prof. Benjamin Iniguez on 1st Sept 2021 and the School was inaugurated by Prof. Sivaji Bandyopadhyay, Director, NIT Silchar, Prof. F. A. Talukdar, Branch Counsellor and moderated by Dr. T. R. Lenka, Faculty Advisor.

42.

Name/type of the event: IEEE EDS Lecture

Date of event: 5th October, 2021

Organizing Institute: **IEEE ED SBC MSIT**

No of participants: 84

Brief report:

On the auspicious occasion of IEEE Day 2021, IEEE ED MSIT SBC in association with IEEE MSIT SB and the Department of ECE, MSIT, Kolkata organized an IEEE EDS Technical Talk Program by Dr. Avirup Dasgupta, Assistant Professor, Dept. of Electronics and Communication Engineering, Indian Institute of Technology Roorkee on 5th October 2021 over Google Meet at 3:00 PM IST.

The topic of the talk was "Semiconductor Devices: Recent Advances and Open Problems". Prof. (Dr.) Ankur

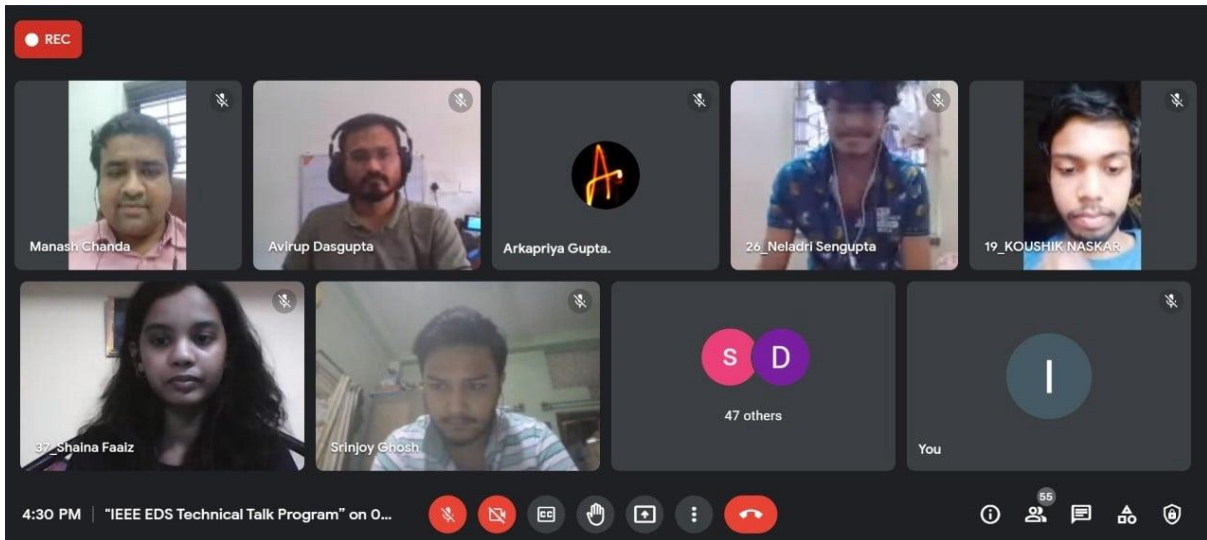
IEEE EDS Kolkata Chapter Consolidated Activity Report 2021

Ganguly, Principal, MSIT gave the introductory speech and told us about the importance of IEEE Day. It was followed by a speech by Prof. Dr. Susanta K. Bhattacharya, Director, AQA, TIG.

Dr. Dasgupta delivered an insightful and knowledgeable talk and spoke about the modern-day problems the semiconductor devices are facing. About 84 participants (23 IEEE Members) were present in the program.

Dr. Manash Chanda, HoD, Department of ECE, MSIT and Chapter Advisor, IEEE ED MSIT SBC shared the "Thank you" note at the end of the program.

It was indeed a great way to celebrate and mark the importance of IEEE day. The talk was very fascinating and all the participants feel privileged to listen to Dr. Dasgupta. We hope to have more such sessions with him soon.



IEEE ED Technical Talk Program by Dr. Dasgupta

43.

Name/type of the event: IEEE ED Seminar

Date of event: 29th – 30th October, 2021

Organizing Institute: **IEEE ED SBC NSEC**

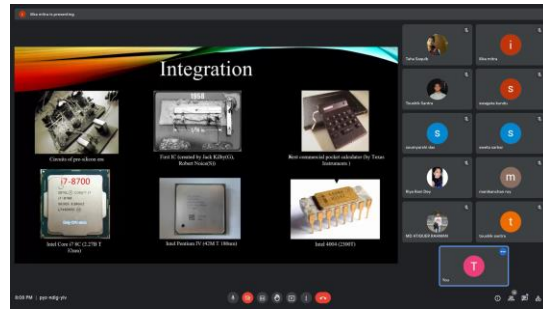
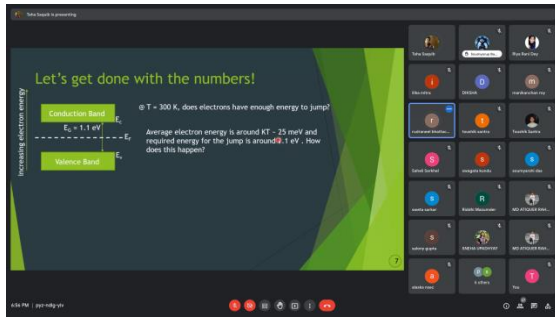
No of participants: 24

Topic: Introduction to Electronics and VLSI

Brief report:

IEEE ED Netaji Subhash Engineering College, Student Branch Chapter in association with the GnZ Student Cell, Department of Electronics and Communication Engineering, organized a two – day webinar conducted by the current and erstwhile students of ECE on "Introduction to Electronics and VLSI (with Introduction to HDL)" on 29 and 30th of October, 2021 to familiarize students with the ongoing research trend in the world of electronic devices, emerging non-conventional device structures, VLSI design flow and a dedicated session for hands – on training in VHDL (using Verilog). The online platform chosen for the event was Google Meet. The session of both days was of 1 hour and 30 minutes. The event had about 24 participants on an average including IEEE EDS members and UG students from 2nd to 4th year of ECE and faculties. Both the sessions were very interactive where students got the opportunity to learn and expressed interest in this research domain.

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Truth Table of the Logic Gates

A	B	AND	OR	NOT ($\neg A$)	NAND	NOR	XOR	XNOR
0	0	0	0	1	1	1	0	1
0	1	0	1	1	1	0	1	0
1	0	0	1	0	1	0	1	0
1	1	1	1	0	0	0	0	1

44.

Name/type of the event: Students Seminar

Date of event: 23rd – 24th November, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

No of participants: 30

Topic: Emerging Topics of Micro/Nanoelectronics and VLSI Design

Brief report:

Students Seminar with Technical Presentations on “Emerging Topics of Micro/Nanoelectronics and VLSI Design” online as well as offline during 23-24 Nov 2021 at NIT Silchar. The program was attended by around 30 EDS members and student members.

45.

Name/type of the event: Thanks Giving Ceremony

Date of event: 26th November, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

Brief report:

Thanks Giving Ceremony by cutting Cakes with EDS Members and Student members to celebrate IEEE EDS NIT Silchar Student Branch Chapter of the Year Award 2021 on 26th Nov 2021.

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(Prof. K. L. Baishnab, HoD-ECE (from left); Samadrita Das, Student Vice-Chair; Prof. F. A. Talukdar, Branch Counsellor; Dr. T. R. Lenka, Chapter Advisor, Dr. Koushik Guha (Treasurer) (from right), and EDS Student Members)

46.

Name/type of the event: STEM Workshop

Date of event: 21st December, 2021

Organizing Institute: **IEEE ED SBC HIT**

No of participants: 05

Title: Tinkering with Technology

Brief report:

An STEM workshop is organized for school students.

47.

Name/type of the event: Annual Social Meet 2021

Date of event: 25th December, 2021

Organizing Institute: **IEEE ED SBC NIT Silchar**

No of participants: 36

Brief report:

1st Annual Social Meet 2021 on 25th Dec 2021 to witness the celebration of *Merry Christmas* at Borakhai Tea Garden, Silchar, Assam. The Social Meet was comprised of Peer Networking, Visit to Tea Estate, Meet,

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Ex-Com meeting, and enjoyment with lots of fun with children and EDS students' members. The program was attended by 16 EDS (faculty) members with their family and 20 EDS student members of M.Tech (Microelectronics and VLSI Design) and PhD program. The program was very much successful and was highly appraised by each and every member.



(Prof. F. A. Talukdar, Branch Counsellor (Centre), Dr. T. R. Lenka, Chapter Advisor (Centre), Jagritee Talukdar, Student Chair, Samadrita Das, Student Vice-Chair, EDS (Faculty) Members & families and EDS Student Members)