



IEEE Indonesia Section Newsletter

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INDONESIA STUDENT CONGRESS 2017

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“Masterpiece of Technology for Better Indonesia”

On 29-31 July 2017 at Ruang Litigasi Fakultas Hukum Diponegoro University and Balai Diklat Koperasi dan UMKM, Diponegoro University, Semarang Indonesia, UNDIP Student Branch hosted the “IEEE INDONESIA STUDENT CONGRESS 2017” (IEEE ISC 2017). IEEE ISC 2017 was chaired by Muhammad Ja’far Shiddiq, attended by 12 Student Branches from all over Indonesia.

This year congress was very interactive and even more engaging with the participants. There are many activities in this event too, those are; Speeches from IEEE Indonesia Section officers; delivered by professors, business leaders, entrepreneur, and young professionals, national seminar, awarding nights, and Semarang trip. In this event, there are four categories of the competitions, which

are: IEEE ISC Paper Competition, IEEE ISC Photo Competition, IEEE ISC Most Active Student Branch Award, and IEEE ISC Best Member Recruitment Award. IEEE SB Institut Teknologi Bandung is chosen to be the host of IEEE ISC 2018.



The Congress started with IEEE Indonesia Section Chair, Dr. Fitri Yuli Zulkifli, ST., MSc.,IPM.,SMIEEE, Professor from Universitas Indonesia gave presentation about Introduction of IEEE, the vision, various activities members can volunteer in and the benefits. Mrs Agnes Irwanti, Secretary of IEEE Indonesia Section, Co-Founder Multikom then had a shared discussion: “become an entrepreneur or pursuing career: what do you really want?”

The next session was by Mrs. Kurnianingsih, Young Professional Chair IEEE Indonesia Section, delivered brief talk about "Attracting and Engaging Young Professional". Then, Mr Lingga Wardhana, Industry Relationship and Professional Activity Vice Chair, CEO Floatway Systems shared about "Industry Relationship and Professional Activity".

Ms Amanda Julia Isa, Student Activity Vice Chair IEEE Indonesia Section gave an informed speech "Power Up Your Team Through The World's Largest Technical Professional Organization", shared stories to secured the 1st Place Humanitarian Project Contest held by IEEE Industry Application Society, in Portland, Oregon, last year. She also shared an experience about life after graduate as Great People Trainee Programs at PT Telekomunikasi Indonesia.

The afternoon session was Seminar by Dr. Eng. Khoirul Anwar, ST., M. Eng.; delivered a very fruitful presentation about "Innovation and Student Creativity".

Second Day of Congress was Student Branch Session. Every Student Branch has a session to share their SB's activities and achievements. In this session, Ms. Amanda Julia Isa gave a productive tutorial about Vtools that provide Online Reporting, Electronic Elections and Remote Conferencing.



This Congress was an amazing experience for all IEEE Indonesia Section especially the student members. We would like to extend our sincere thanks and gratitude to all the committees and partners to host this annual event with their active presence. We would also like to thank all the great volunteers and members! See you at the next IEEE ISC!

"Having a new SB is easy, maintaining it is extra effort! You must have minimal 12 Student members with two technical meetings each year."

TERAHERTZ (THz): FUTURE WIRELESS TECHNOLOGY

Reported By Dr. Catur Apriono, ST., MT., PhD.
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Wireless technology utilizes physics phenomenon of electromagnetic waves. This wave emitted from wave sources, such as an antenna or various wires or cables where the current flows. The existence of the waves was

started to be utilized as communication media since found by Hertz and commercially utilized after the radio communication system was established. As one kind of waves, electromagnetic waves have also a frequency unit, which states the amount of waves in a second. This number allows for the least or zero frequency until very high or theoretically unlimited number of frequencies that are named as electromagnetic wave spectrum as shown in Figure 1.

as lens, mirror and prism, are more suitable for infra-red or higher.

Although the two technologies have been applied widely in various applications, there is a range or a gap frequency between them that are still not yet optimized. This range is called Tera-Hertz (THz) frequency which is located from 0.1 to 10 THz. The use of THz is owing to the frequency unit scale used to identify this range. Because this frequency range is between the electronics and the photonics, some techniques are developed by combining the two. The THz waves have special characteristics that are not found either the lower frequency (electronics) or the higher frequency (optics), such as non-ionizing, fingerprints for various materials, and high carrier frequency. The non-ionizing offers the use of this wave for imaging, especially in medical where it is safer for human tissue than optical imaging, like x-ray, because the lower used power and high precision images due to the small wavelength. This technique is also promising to be applied to airport security system in order to reveal a concealed weapon or forbidden materials. The second advantage is to use absorption and reflection coefficient obtained from emitting waves directed to a material. This technique will produce a special spectrum of reflection or transmission that can be used to identify a material. This advantage has made THz waves utilized for various spectroscopy applications, such as in pharmacology and industries. Another potential of the very high frequency provided by the THz waves is to provide very high carrier frequency compared the lower

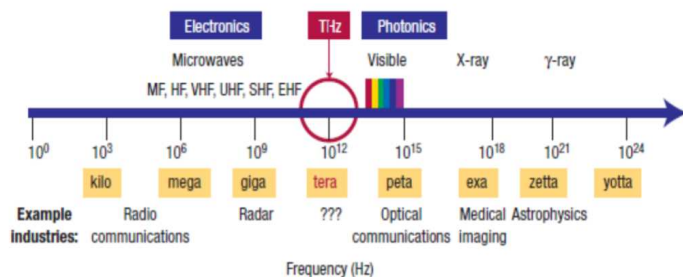


Figure 1. The Electromagnetic Spectrum (B. Ferguson et al., Nature materials, 2012)

By physics, a certain frequency range has specific characteristics than other ranges. As an example, invisible electromagnetic waves ranged in radio frequency can pass through various mediums or materials. However, for very high frequency in optic region, the waves are unable to pass through barriers and tend to be reflected or absorbed. Those two characteristics are often identified to be applied in electronic domain and photonic domain, respectively. These terms are caused by technology approach used to provide the proper components. Electronic components, such as transistor, resistor, inductor, and capacitor, are suitable for microwave or lower frequency. However, optics components, such

frequency. This condition is useful for telecommunications that can provide bigger bandwidth. For example, in a linear condition, the use of THz waves may increase data rate up to 1000 times of the capability of existing cellular technology.

Various potentials of THz waves are still needed to be developed by facing and solving challenges. Some main challenges are to provide high efficiency waves sources and high sensitivity detectors. Moreover, high attention levels in this region should be considered when developing THz system. This condition may be solved by providing a high gain transmitter or a high gain receiver to compensate the power loss in the transmission channel. In the last few decades, researchers around the globe have been excited and competing to conduct research and development of THz technology to optimize and improve efficiency. Therefore, in a couple years later it is expected that THz technology will have been ready to be utilized in an actual use for various applications.

INTRODUCING IEEE AND MINI WORKSHOP FOR WRITING SCIENTIFIC PAPER

Reported By Dr. Teti Zubaidah
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The event was held on July 24, 2017 at the Engineering Faculty University of Mataram (EF Unram), with Dr. Fitri Yuli Zulkifli (Chair of IEEE IS) as speaker. This activity aims to

introduce IEEE to Lecturers, engineering practitioners and students in Eastern Indonesia, especially NTB and NTT provinces. The event was attended by 25 Faculty of Engineering (FE) Universitas Mataram (Unram) lecturers, 12 FE Unram students, and 11 Lecturers outside FE Unram, and 1 representative from industry. The event was opened by Vice Dean 2 FE Unram (Ir Miko Eniarti) and Chairman of Department of Electrical Engineering FE Unram (Sudi Maryanto Al Sasongko, MT).



Participants responded enthusiastically to the introduction of IEEE, especially FE Unram students who were eager to form Student Branch. They ask about the procedure, what activities can be done to maintain the sustainability of this student branch, and whether there is a community of SB in Indonesia. In addition there is a question from a female lecturer about how to divide her time between professional life and family. Mrs Yuli answered the need for husband supports for wives who works as an engineer, but do not worry because in IEEE there is "Women in Engineering" Society, where woman members can share with other professional ladies; of course with women who are already successful in their time management.

In addition, interesting scientific writing event was conducted and perceived benefits by participants, where the speaker shared a lot of her knowledge. She presented the motivation of scientific writing and writing techniques, as well as writing workshops, and also reviewed papers brought by participants. The speaker is very concerned about the ethics of scientific writing in the IEEE who pay serious attention to the problem of plagiarism.

The event concludes with certificate submission to the speaker given by Dr. Teti Zubaidah as East Indonesia Region Coordinator of IEEE IS, and ended with a photo group session. After this event, it is expected to increase the number of IEEE memberships, and an SB will be formed in Unram, and hopefully it can be followed by many other IEEE activities in this region.

THE FUTURE DECIDED HERE

Reported By Cesio Raihandary
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University of Diponegoro successfully held the IEEE Indonesia Student Congress 2017 and also represents the beauty of Semarang city. ISC is an annual student congress for IEEE Indonesian Student branches to shares and expresses the ideas and thoughts for the future of IEEE Indonesia. Bringing the theme of, "Masterpiece of Technology for Better Indonesia", the event is self-organised from 29th- 31st July 2017. Three

days of great seminars, conference, discussion, contests, gathering, and city tour.

Telkom University sent out six delegates (Ananda, Cesio Axel, Satrio, Nanang, and Shadiq). Also joint force are from Institute of Technology Bandung, University of Udayana, Universitas Indonesia, University of Hasanuddin, Polytechnic of Mechatronic Sanata Dharma, Institute Technology Sepuluh Nopember, University Dian Nuswantoro, University of Jember, AMIKOM, University of Brawijaya, and University of Diponegoro it self. All delegations were developing a great relationship between IEEE student branches in Indonesia. We also submitted two scholarly articles call for paper contest. First Tel-U team which consist of Ananda, Cesio, and Satrio successfully brought a memorable 2nd Winner of the call for paper contest with "Smartcharge: Energy Wireless Transfer with Piezoelectric Energy Harvesting for Public Area."

The ISC starts with warm welcomes and seminars and discussion from professionals and experts from Ms. Fitri Yuli Zulkifli as IEEE Indonesia section chair, Mr. Khoirul Anwar, Mr. Lingga Wardhana, Ms. Agnes Irwanti, Ms. Kurnianingsih, and Ms. Amanda Isa. The first day summed up to be a great experience for us. Discussion between IEEE Indonesia student branches, website tutorial by Ms. Amanda Isa, and fun city tour, followed for the next days. We visited Sam Po Kong Temple and the legendary Lawang Sewu for enjoying the city tour.

The second night was time for the game session and awarding night. The awarding night winners consist of Call for paper contest award, photo contest award, most active student branch award, and best student

branch recruitment program award. Telkom University got yet another award for "IEEE ISC Most Active Student Branch 2017." Also that night, we decided that ISC 2018 would be held in Bandung, with Institute of Technology Bandung as the host. The night was emotional as we become more of good friends.



We got a lot of suggestions and ideas from other student branches. We shared experience and stories with them. What a great experience we got there: the unforgettable excitement, good new friends and many relations. It's three days that you need once in your life and we are craving for more of this in the future. Most important, together, we were building the bond for making masterpiece technology for better Indonesia. We are IEEE Indonesia Student Branch.

"What a place, what friends, what a beautiful time! See you guys next Year!"

CHAPTER CHAIR MEETING

Reported By Ir. Endra Joelianto, PhD
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IEEE Indonesia Section held Chapter/Joint Chapter Meeting on July 22, 2017 at LIPI Bandung. This activity is expected to enhance a tight relationship with IEEE Chapter in Indonesia and provide guidance and motivation for Chapter/Joint Chapter officers to conduct activities and reporting regularly on time. The event was hosted by IEEE Indonesia Section Chapter Coordinator Ir. Endra Joelianto, Ph.D. with the main speaker, Chair of IEEE Indonesia Section Dr. Fitri Yuli Zulkifli, S.T., M.Sc. and also was attended by the Vice Chairman of IEEE Indonesia Section, Dr. Ucuk Darusalam, S.T., M.T, as well as 15 representatives from the Chapters in Indonesia.

First of all, the representatives were acquainted with each other and also with the new executive committee of IEEE Indonesia section and their programs. Then, there was information about IEEE By Laws Indonesia and the use of IEEE Vtools. In addition, Vtools has provided facilities for chapter officers to make digital activity announcement boards to chapter members in Indonesia and even abroad.

IEEE DAY WISHY CONGRESS

Upcoming event! Be aware, IEEE Indonesia Section will be celebrating IEEE day with the first WISHY congress! WISHY stands for Women in Engineering, Industry Relation, Student Activity, Humanitarian and Young Professional, all combined in one congress with the theme “**Technology for Quality of Life**”! There will be interesting talks. Please mark the date of this congress **5 October 2017**. Place at Semarang, it will be integrated with the conference COMNETSAT. You can attend the conference COMNETSAT which is integrated with WISHY congress or you can choose to only attend the WISHY congress, it’s up to you. So be there!

CONFERENCE NEWS

Here is the conference info with sponsored by IEEE Communications Society Indonesia Chapter to be held next:

Conference Name	Website
WPMC, December 17 -20, 2017 Bali - Indonesia	http://wpmc2017.org/

More information about IEEE conferences technical co-sponsored by Indonesia Section or by chapters in Indonesia can be found in link:

<http://iee.id/conference-list/>

CORRECTION

- ❖ Fatimah Sirin Alaydrus, the article reporter on News letter No. 01, May 2017 about Grand Launching IEEE SBUI 2017 and World Telecommunication Day Seminar, she is from President IEEE Student Branch Universitas Indonesia, not from President IEEE Student Branch Telkom University.
- ❖ Fatimah Sirin Alaydrus, the article reporter on News letter No. 02, June 2017 about #1 Ranking Recruiters Of The Month –Member Get Member (MGM) Program On May 2017, she is from President IEEE Student Branch Universitas Indonesia, not from President IEEE Student Branch Telkom University.

Our sincere apologies for the mistake and for any inconvenience caused.

EDITOR

The 3rd edition of the IEEE Indonesia Section 2017 newsletter includes activities which have been conducted in July 2017. The first activities section includes IEEE Indonesia Student Congress; Introducing IEEE and Mini Workshop for Writing Scientific Paper at Universitas Mataram and Chapter Chair Meeting in Bandung. The second article is a technical article about *Terahertz: Future Wireless Technology*. The third report is about upcoming event that is the celebration of IEEE day with the first WISHY congress. We have articles

and other information that is also interesting.
Hope you enjoy this newsletter edition!

Happy reading!

Casi Setianingsih & Hugeng,

Editor - IEEE Indonesia Newsletter

We are waiting for the participation of Chapters and Student Branch in Indonesia to share the information of completed and ongoing activities and the participation of Chapters in Indonesia to share the regarding technical articles. For members IEEE who want to share information and articles please email to :

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Official Website

<http://ieee.id>

IEEE Indonesia Section