



The 4th International Symposium on the Fusion Science and Technologies 2015

January 12-16, 2015

Rajamangala University of Technology Suvarnabhumi, Huntra Campus,

Phra Nakhon Si Ayutthaya, Thailand

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Dr. Nida Chaimoon	Thailand	Dr. Nuttawut Intaboot	Thailand
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ICT Communication Science & Technology	Industrial Electronics Science & Technology
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Electrical Installation Science & Technology	Carbon Material Science & Technology
Solar Energy Science & Technology	Air Conditioning Equipment Science & Technology
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Wind Power Energy Generation Science & Technology	Ocean & Fisheries Science & Technology
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Power Electronics Science & Technology	Equipment Control Science & Technology
Food & Cold Storage Science & Technology	Airflight & Railroad Science & Technology
Thermal storage Science & Technology	Automotive industry Science & Technology

Message from the President of Rajamangala University of Technology
Suvarnabhumi, Thailand



I am deeply honored that Rajamangala University of Technology Suvarnabhumi (RUS) has the opportunity to host the 4th International Symposium on the Fusion Science and Technologies, (ISFT 2015) in Thailand during 12-16 January 2015. I have been informed about the last academic collaboration between Gyeongsang National University (GNU), Korea and RUS that created the opportunity to exchange students and researchers. In addition to that, there were over hundreds participants from many countries including France, Russia, Canada, India, China, Bangladesh, Indonesia, Korea and Thailand.

This time, the 4th ISFT, there are over 120 professors and students from 10 countries. I and the RUS staffs would like to welcome you to this event. Moreover, we also have a visit to the Industrial Plant and opportunities to study and experience Thai culture at Phra -Nakhon-Si-Ayutthaya, which is a World Heritage site.

I hope that ISFT 2015 will also create more opportunities to exchange academic values as well as cultural aspects so that we all can be a well-rounded citizen that can form a stable community.

Lastly, I would like to say thank you to the organizers of six parties from Korea, India, China, Japan, USA and Thailand. Thank you Prof. Dr. Hanshik Chung, CEO Chulsu Kim, Prof. Dr. Naveen Kumar. I also would like to thank all the sponsors such as KTENG, BSCM, ELWE (Thailand) to support of this conference. I also hope that there will be future opportunities for us to work together again for the greater good of all institutes and industries that participate this conference.

A handwritten signature in blue ink, appearing to read "Paisal B." in a cursive style.

Assist. Prof. Paisal Burinwattana
President of Rajamangala University of
Technology Suvarnabhumi, Thailand

Message from Co-Founder of ISFT & THAI Chairman
and Dean of Faculty of Engineering and Architecture of RUS



Welcome to ISFT2015 conference at Rajamangala University of Technology Suvarnabhumi, RUS, Phra-Nakhon-Si Ayutthaya, Thailand, during 12-16 January, 2015 due to the upcoming 10th Years Anniversary of RUS.

The International Symposium on the Fusion Science and Technologies or ISFT conference will focus on the academic and research developments between global the universities and industries. ISFT was started through the fantastic relationship between South Korea and Thailand by the founders of ISFT, including Prof. Dr. Hanshik Chung, Dean of College of Marine Science, GNU, and Dr. Chulsu Kim, CEO of KTENG, from Korea and Assoc. Prof. Napat Watjanatepin, Dean of Faculty of Engineering and Architecture of Rajamangala University of Technology Suvarnabhumi, and Mr. Manoon Chunchom from ELWE (Thailand), had started ISFT since 2011 until now, we have run three conferences as following:

ISFT 2012 held at GNU, Korea during 28th June 2012 - 2nd July, 2012.

ISFT 2013 held at RUS, Nonthaburi, Thailand during 1st – 3rd August, 2013.

ISFT 2014 held at the NTC, Jeonju City, Korea on 30th – 31st July, 1st – 2nd August, 2014.

All past conferences, we received a very fantastic cooperation and success.

The goal of ISFT is to integrate theory and practice in the field of Fusion across Engineering science, Business management, Industrial science, and Social science by providing a forum for sharing ideas and experiences between industry and academic and to strengthen academic and research cooperation, including the university and industry cooperation in order to benefit many countries from the ISFT network. We have around 10 countries to joint this ISFT, such as India, Indonesia, Japan, South Korea, China, Bangladesh, Canada, France, Russia, and Thailand. The total papers that present in this international conference are more than 120 papers.

The high quality full papers will be reviewed and invited to be published in the RUS journal as well

as recommended to be published in journals such as JISFT, IJIBC, IJASC, JIIBC, JITM in South Korea.

Lastly, I also would like to express my gratitude to our great participants and give a warm welcome to all of you, especially all friends who have travelled from far away. Without your support and cooperation, this event would not have been possible. I hope that ISFT will be a gateway to sustainable development in research academics and students activities for our ISFT networks. Please announcements the fifth ISFT at New Delhi, India to other friends. I hope to see all of you in India on 2016.



Assoc. Prof. Napat Watjanatepin

ISFT2015 Chairman

Rajamangala University of Technology

Suvarnabhumi, Thailand

Message from the President of International Society on
the Fusion Science & Technologies



Welcome to ISFT 2015!

First of all, I want to thank President Paisal Burinwattana, Vice president Raveewan Suwanason.

Also I'd like to give my thanks to Honorary Chairman Prof. Han-shik Chung, ISFT2015 Chairman Prof. Napat Watjanatepin, ISFT India Chariman Prof. Naveen Kumar, Advisory Chairman Prof. Viboon Chunkag, Co-Chairman Prof. Kang Byung Ha, Youngil Kim, Jinman Kim from Korea.

I further thanks to Ex-President of The Society of Air-conditioning and Refrigeration Engineering of Korea Prof. Sukhyun Kim, Prof. Gwangsup Chung, Prof. Hwataik Han and Ex-President of The Korea Institute of Electrical Engineers Prof. Younghyun Moon.

ISFT will continue to advance with new looks toward development and exchange of International fusion science and technologies. The future of humanity demands convergence science and technology. We must put together our forces to carry out R&D, industrial technology, exchange in culture & education.

For the development of international fusion science and technologies, ISFT will form a new organization in each country with local industry, university, and government. Korea ISFT organizes website and operates 25 Technical expert committees for the development of new technologies through joint R&D, government project. We will spread ISFT's sprit and know how to organize new organization through local ISFT in each country. As a result, I hope that ISFT will be the most powerful leader for worldwide fusion science and technologies.

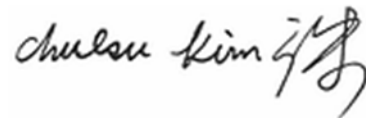
Through ISFT 2015, we look forward to mutual exchange between fusion science and technologies and excellent educational institutions worldwide.

ISFT2016 will be held in India on December, and ISFT2017 will be held in Korea on July. Please join us for these future events. I know that together we can make ISFT be a strong international

organization.

Lastly, I give my thanks to the organization committee members from Rajamangala University of Technology Suvarnabhumi, Pra Nakhon Si Ayutthaya, Thailand and KTENG. I hope you will have enjoyable and rewarding days during your stay in Pra Nakhon Si Ayutthaya Thailand.

Thank you

A handwritten signature in black ink, reading "Chulsu Kim" followed by a stylized signature mark.

Chulsu Kim, Ph.D.
ISFT Korea side Chairman
CEO of KTENG Corporation, Korea

Message from the Founder & Honorary Chairman of ISFT
the Dean of College of Marine Science,
Gyeongsang National University, Korea



It is indeed a great honor for me as the Founder and Honorary Chairman of ISFT to welcome all conference participants and all officials involved to ISFT 2015.

I am pleased to extend my sincerest congratulations to Rajamangala University of Technology Suvarnabhumi, Thailand in recognition of the host of ISFT 2015.

This year, ISFT 2015 will feature approximately 120 papers and 120 participants from all over the world, in their capacities as researchers, academicians and professors and so on.

Our conference aims to make the fusion technology from various majors and advancement in new academics. Already, ISFT, the conference itself, has contributed to the advancement of Science and Technology and I strongly believe that it will bring forth rapid progress in a field of Study, too.

I hope that we will get research materials about various subjects, discuss on the cross-border co-operations and joint projects through 4th ISFT. And Bangkok, Thailand has many cultural heritages, so I hope you can make good memories in this traditional and cultural city. I wish the ISFT 2015 serve as a momentum to meet new scholars and friends. I appreciate that Dean Napat Watjanatepin as the Organizing Chairman, CEO Chulsu Kim as Korea side chairman and all of the organizing committee members had dedicated themselves to organize this ISFT.

I look forward to meeting all of you again at the 5th ISFT at 2016 in India.

Thank you.

A handwritten signature in blue ink that reads "Hansik Chung". The signature is fluid and cursive.

Hansik Chung, Ph.d., Prof.

Founder & Honorary Chairman of ISFT
Dean of College of Marine Science,
Gyeongsang National University, Korea

Keynote Speaker



Prof. Nouredine Takorabet

- Université de Lorraine, France
- GREEN-ENSEM (Group of Research in Electrical Engineering of Nancy), Nancy, France

Papers

- 35 Journal papers mainly IEEE Trans. Mag., 70 or more Conference Papers mainly IEEE CEFC-COMPUMAG-IAS-ICEM and 15 other conferences

Award

- The INPL Thesis Award in 1997 which is one of the 5 best theses in INPL per year.

Field of Expertise:

- Electrical engineering and electromagnetism
- Mathematics, Optimization and Numerical Analysis
- Modelling and optimization of electromagnetic devices
- Finite element modelling
- Electric machines (PM IM, Linear motors, ...)
- Design and optimization of electric machines according to their control



Prof. Sergey V. Panin

- Doctor of Eng. Science, deputy director on research Institute of Strength Physics and Materials Science, SB RAS, Tomsk, Russia
- Head of Mechanics of Composite Polymeric Materials Lab., Professor of National Research Tomsk Polytechnic University, Russia

Papers

- Author more than 200 scientific papers including 6 monographs, 3 patents of RF, 12 Rospatent certificates on Software registration.

Field of Expertise:

- Physical mesomechanics of materials, Polymeric composite materials, wear, fatigue, non-destructive testing, image processing, digital image correlation, acoustic emission.



Prof. Dr. Naveen Kumar

- Prof. Dr. Naveen Kumar studied at D.E.I., Agra, IIT Delhi and University of Delhi., deputy Professor & Head, Mechanical Engineering Department, Delhi Technological University

Summary of Experience

- Prof. Kumar has over 24 years of experience of industry, teaching and research. He is Editor-in-Chief of ‘Journal of Biofuels’. He is also on the editorial board of many journals and also works as reviewer of reputed journals like ASME, Elsevier, Springer, Wiley etc. He has published research papers both in national and international journals and attended a large number of national and international conferences.

Field of Expertise

- Alternative fuels with special emphasis on biofuels
- Decentralized power systems
- Renewable energy
- Waste recycling and sustainable development



Young Il Kim

- Professor, School of Architecture, Seoul National University of Science & Technology
Major: Thermal-fluid engineering, Building energy

Education

- 1984, B.S. Mechanical Engineering, Seoul National University
- 1986, M.S. Mechanical Engineering, Seoul National University
- 1993, Ph.D., Mechanical Engineering, University of Michigan
- 2002, Professional Engineer, Air-conditioning refrigerating machinery
- 2004, Professional Engineer, Building mechanical facilities

Career

- 1987-1988 Researcher, KAIST
- 1993-1994 Post-doc research fellow, Univ. of Michigan
- 1994-2005 Principal research scientist, KIST
- 1996- Member, Society of Air-conditioning Refrigerating Engineers of Korea
- 1996- Member, Korea Association of Air Conditioning Refrigerating and Sanitary Engineers
- 1998- Member, Korean Society of Mechanical Engineers
- 2004- Member, Korean Society of Geothermal Energy Engineers
- 2005- Member, Architectural Institute of Korea
- 2014- Member, ASHRAE



Assoc. Prof. Dr. Viboon Chunkag

- Assoc. Prof. Dr. Viboon Chunkag received the Ph.D. degree from the School of Electrical and Electronic Engineering, University of Bath, U.K. in 1995.
- Assoc. Prof. Dr. Viboon Chunkag is currently an Associate Professor in the Department of Electrical and Computer Engineering, Faculty of Engineering, KMUTNB.

Summary of Experience

- Assoc. Prof. Dr. Viboon Chunkag has over 20 years of experience of teaching and research in Electrical Engineering.

Field of Expertise

- Analysis of power electronic circuits and control
- Rectifiers and power factor correction
- Power system harmonics
- Power switching converter
- Active power filter