

***“Report on IEEE MTT-S IMWS-Bio 2014, London-UK, 8-10 December 2014
[Conference Report]”***

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Report on IEEE MTT-S IMWS-Bio 2014, London-UK, 8-10 December 2014

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“Brilliant successful event”, “Excellent organisation” and “Medicine meets Microwave meets RF, very interdisciplinary” are a few of the positive and complimentary comments (in addition to “*Would definitely attend future IMWS-Bio events*”) received from attendees of the 2014 IEEE Microwave Theory and Techniques Society (MTT-S) International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications (IMWS-Bio 2013), which was held at the London Canary Wharf Hilton, London, United Kingdom, in the period 8–10 December 2014. London was the perfect setting for such multi-disciplinary event focused on innovation cutting-edge research. It is the largest city in the European Union with a vibrant and always changing social and technical scene attracting people from different backgrounds and walks of life. It is the most known shopping city of the world and specifically for the Christmas period (mainly in December) where the whole city was dressed in red and white with efficient and excellent public transport and tastes that satisfy everyone.

The IEEE IMWS is an initiative promoted by the MTT-S Members and Geographic Committee to complement the existing workshops of the MTT-S International Microwave Symposium. The purpose of this new platform in its second year is to boost and promote MTT-S technical and educational activities as well as MTT-S international exchanges and collaborations. The 2014 edition of the workshop was technically cosponsored by the IEEE, IEEE MTT-S, IEEE Antennas and Propagation (AP) Society and the Institution of Engineering and Technology (IET). The IEEE IMWS-Bio 2014 provided an international forum for the exchange of information on state-of-the-art research in bio-electromagnetic, RF and wireless technologies for medical systems and healthcare services and ICT initiative bridging the science of microwave and EM with biomedical applications.

As a considerably small-scale conference, IMWS-Bio 2014 had a big impact and exceeded many expectations based on the positive reviews received and also the high quality papers, presentations and posters produced during the event. We had the honour of hosting 8 world-renowned keynote speakers, 22 excellent invited talks and a special distinguished banquet evening talk. The IMWS-Bio 2014 received a total submission of 120 papers, including invited papers and regular papers from 24 countries with 120 registrants at the event itself. After performing rigorous and thorough technical reviews, all of the invited papers and 70 regular papers were accepted for oral and poster presentations divided into 10 oral sessions and two main poster sessions. The conference also included a quick-fire presentation session for best student paper contest finalists (8 were selected) and the

contest was judged by a panel of international experts led by Prof. Xiaodong Chen (Queen Mary University of London, UK).

The success of IMWS-Bio 2014 is due to the contributions of many people and parties. We would like to extend our thanks to; the keynote speakers, invited speakers, participants, reviewers, committee members, session chairs, our sponsors and exhibitors (CST, Ansys, Rhode and Schwarz, Emblation Microave, IEEE QMUL Student branch and John Wiley & Sons Ltd.) and of course our amazing volunteers and organisers (Figure 1).



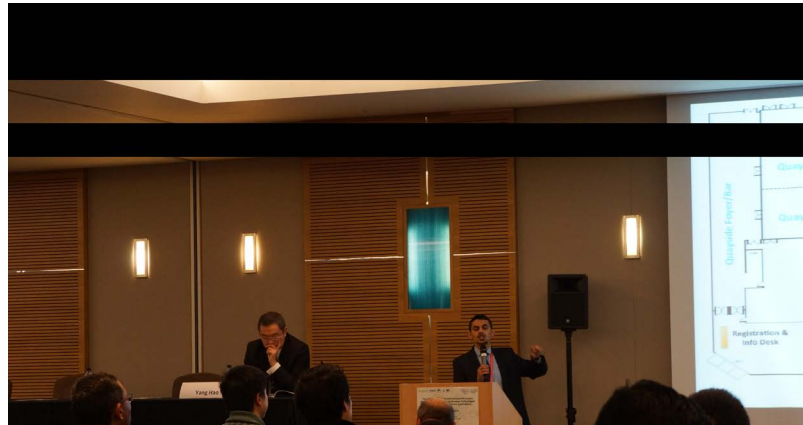
Figure 1: The IEEE MTT-S IMWS-Bio 2014 Volunteers and Organisers from Queen Mary University of London

IMWS-Bio 2014 opened with a welcome speech and appreciation to all distinguished guests and attendees by the conference general chair, Prof. Yang Hao [Figure 2(a)]. Dr Akram Alomainy (TPC Chair) reported on the paper submissions and review process and criteria [Figure 2(b)] and introduced the logistics of the conference and organisation matters. After the opening session, two keynote speakers (the first of 4 keynote sessions organised for 8th and 9th December 2014) gave their plenary presentations in the morning of the first day: Prof. John L. Volakis, The Ohio State University, United States (“Textile Sensors for Non-invasive Health Monitoring”) [Figure 3(a)]; Prof. Dominique Schreurs, KU Leuven, Belgium (“Wireless Radar Sensor Networks for Long-term Health Monitoring”). Six more keynote speeches were delivered on the afternoon of the first day and also the morning and afternoon of the second day; Prof. Koichi Ito, Chiba University, Japan (“Therapeutic Applications of Microwave Antennas”); Prof. Peter S. Hall, University of Birmingham, UK (“Retrospective View of Recent Progress in Antennas and Propagation for WBANS”); Prof. Konstantina S. Nikita, National Technical University of Athens, Greece (“The Future of Medicine is Wireless: On-Body and In-Body Devices Transforming Healthcare”) [Figure 3(b)]; Prof. Douglas Werner, The Pennsylvania State University, USA (“Advanced Wearable Antenna Development for Body Area Networks”); Prof. James C. Lin, University of Illinois at

Chicago, USA (“Recent Advances in Health and Safety Consideration of RF and Wireless Technologies”); and Prof. William G. Scanlon, Queen's University Belfast, UK (“What next for reliable body sensor networking? Addressing the challenges faced by wireless communication systems in close proximity to the human body”).



(a)



(b)

Figure 2: (a) Prof. Yang Hao (IMWS-Bio 2014 General Chair) opening the conference; (b) Dr Akram Alomayny (IMWS-Bio 2014 TPC Chair) introducing Conference Logistics and Reviewing Statistics



(a)



(b)

Figure 3: (a) Prof. John L. Volakis delivering his keynote speech; (b) Prof. Konstantina Nikita delivering her keynote speech.

The attendees enjoyed and appreciated these inspiring and cutting-edge presentations from different perspectives. In addition to the plenary presentations, the technical program was organised in oral and poster sessions. There were 10 oral sessions distributed along the three days of the conference [Figure 4] and there was one poster session (including Best Student Contest Finalists) on Monday afternoon and the second poster session took place Wednesday morning. The exhibitors and attendees appreciated the location of the posters close to the exhibition room, which attracted more people to the exhibition [Figure 5].

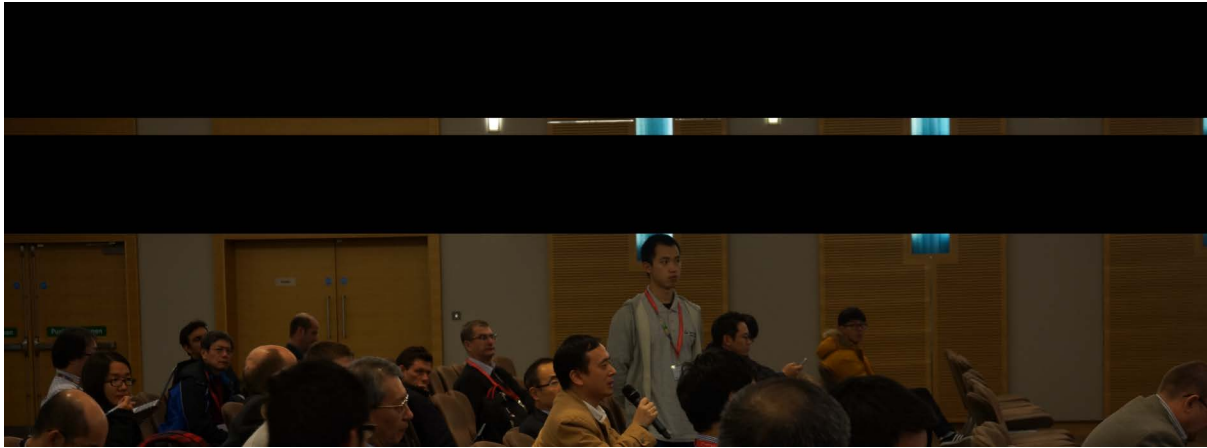


Figure 4: Interactive oral sessions

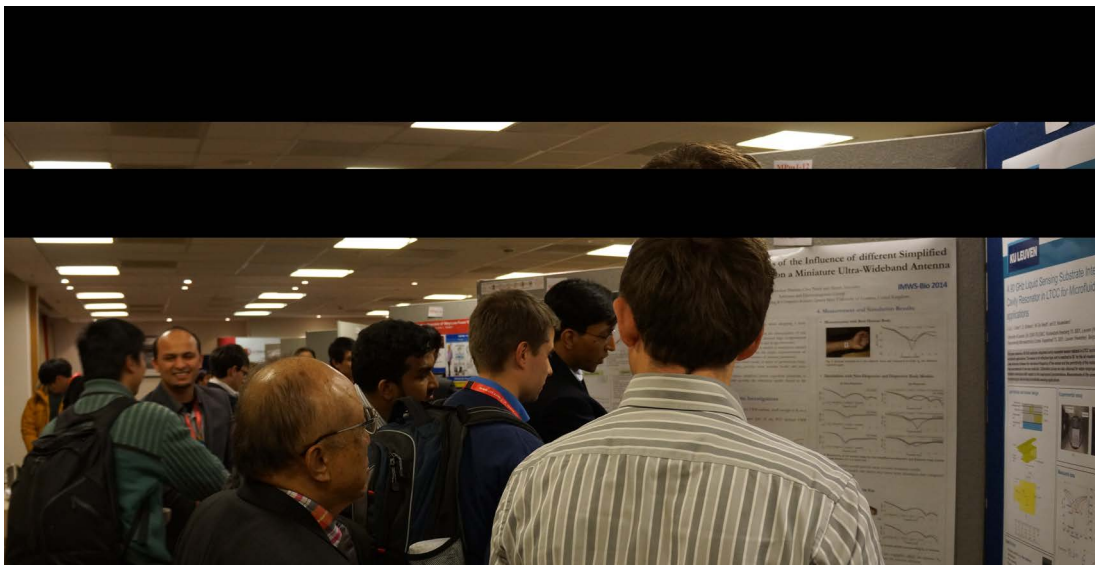


Figure 5: Poster sessions and exhibitions attracted significant number of attendees

The social program included the reception drinks and canapés and the banquet dinner on the evenings of the first and second days, respectively. At the conference banquet and award presentation dinner on the evening of the second day [Figure 6], Prof. Peter Clarricoats (*CBE FRS FREng FIET FIEEE*) [Figure 7], Queen Mary University of London, UK, delivered a banquet speech on the history of microwave techniques and methods in the field of biomedical engineering. Then Prof. Yang Hao (general chair) expressed appreciations to all the organising committee team members; keynote speakers, distinguished microwave lecturer and invited speakers; the helpers; all delegates; as well as the sponsors and exhibitors. Prof. Clive G. Parini (TPC co-chair) along with David Houssein (IET) announced the Best Student Paper Awards sponsored by the IET [Figure 8] and also the Best Paper Award sponsored by Wiley.

- Best Student Paper Awards
 - First: Cedric W. Lee, The Ohio State University
 - Runner-up: K. K. Adhikari, Kwangwoon University, Seoul, Republic of Korea
- Best Paper Awards

- First: Heedon Jang, Ulsan National Institute of Science and Technology Electrical and Computer Engineering
- Runner-up: Dr. Mohd Yazed Ahmad, University of Malaya

The banquet included an interactive musical session named the Mood Conductor where the audiences were able to control the mood of the played music through a smart phone interface and the musician were able of adapting their tone and rhythm (including genre) based on the overall mood of the hall.

IMWS-Bio 2015 will be held in Taipei, Taiwan, 21–23 September 2015. The general chair for IMWS-Bio 2015, Prof. Dar-Chin Rau, Oriental Institute of Technology, Taiwan, promoted this event at the banquet [Figure 9]. All in all, this future-looking conference was a great success and provided a dynamic forum for high-level and creative exchanges among the delegates.

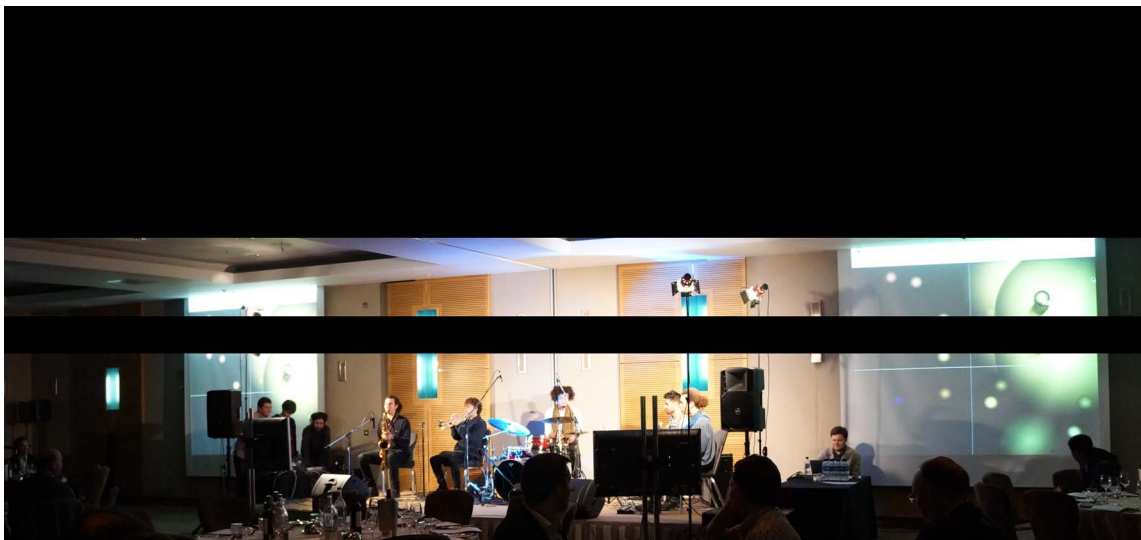


Figure 6: IMWS-Bio 2014 banquet dinner including the Mood Conductor interactive music session



Figure 7: Prof. Peter Clarricoats delivering his pre-dinner speech

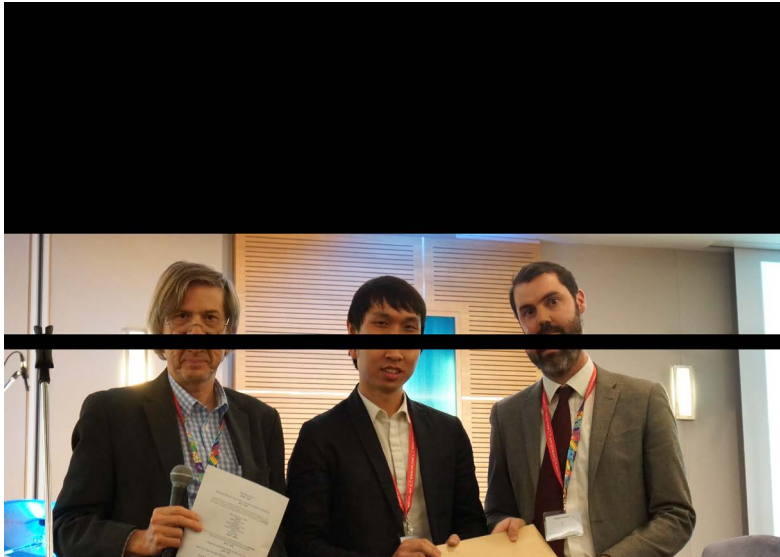


Figure 8: Prof. Clive Parini and David Houssein presenting the Best Student Paper award to Cedric Lee from The Ohio State University, USA

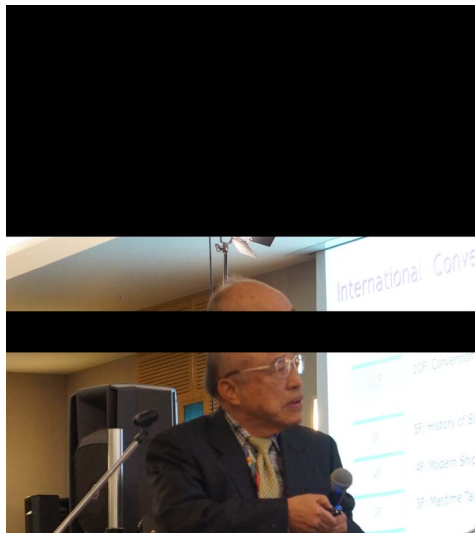


Figure 9: Prof. Dar-Chin Rau (general chair of IMWS-Bio 2015) introducing the third version of the event to take place in Taipei, Taiwan in September 2015