Highlights of the 53rd Annual Microwave Power Symposium (IMPI 53)

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The 53nd Annual Microwave Power Symposium (IMPI 53) held in June 18-20, 2019 at the Caesars Palace in Las Vegas, Nevada, USA (Fig. 1) gathered about 120 attendees from 18 countries. IMPI 53 program featured 65 presentations on a wide range of high power microwave applications with a growing focus on solid-state microwave amplifiers. Furthermore, a record number of 19 companies presented their products at the industrial exposition.

During the welcome reception Jennipher Marshall-Jenkinson, MTA-UK was featuring a very interesting live microwave cooking demonstration. Further social events have been two networking luncheons and a Group Dinner at Pizzeria Monzu.

Figure 1. Caesars Palace, Las Vegas

A new event was the Exhibitor Spotlight that started beforehand the welcome reception where each exhibitor performed booth side demonstrations.

Figure 2. Exhibition

A strong focus of most exhibitors was on the solid-state amplifier (SSA) market. The latest news in this sector stretched from the development of new high power 1-stage Push-Pull 500 watt RF transistor for the 2.45 GHz ISM band from AMPLEON to complete custom-made systems based on SSA. For example, Huber+Suhner impressed with a modified domestic microwave oven (see Fig. 3), operated with a 250 W SSA at 2.45 GHz. A novel compact waveguide, partially filled with a dielectric material, transmits the microwave power into the microwave chamber. Furthermore, a smartphone app allows controlling the SSA frequency while an array of polychrome LEDs fixed in a Plexiglas plate indicate field polarization and strength of the excited cavity mode by colour and luminosity, respectively.

Figure 3. Huber+Suhner: domestic microwave oven with a solid-state amplifier as power source

Dr. Kenneth Foster, Professor of Bioengineering at the University of Pennsylvania, and Michael Wolf, Founder of the Smart Kitchen Summit, delivered the two Keynote talks. Invited papers were delivered by Dr. Klaus Baumgaertner of Muegge GmbH, Dr. Eleanor Binner of the University of Nottingham, Mr. Christopher Hopper of IBEX and Dr. Alain LeBail of ONIRIS. Dr. Klaus Werner, former Executive Director of the RF Energy Alliance, led a panel discussion focused on IMPI's

newly formed Solid State RF Energy Section and their plans for the future.

From the oral presentations, one of my highlights was the talk given by Kenneth Kaplan from Cellencor, Inc entitled 'Utilizing Independent Parallel Outputs from High Power Solid State Microwave Generators' where a high power and high-temperature patch antenna design with a balloon shaped radiation pattern has been introduced.

There were three awards. Petra Kumi (Worcester Polytechnic Institute, USA) was granted an honorable mention. Ali Taqi (University of Nottingham, UK) was awarded the best oral paper and myself the best presentation for which we were both given a one-year student membership to IMPI as well as a cash prize.

Dr. Juan Anguilar-Garib, University of Nuevo Leon was chosen to be the 35th Fellow of IMPI and was handed a commemorative plaque.

During the closing ceremony on June 20th, it was announced that the location of IMPI54 will be the historic DeSoto Hotel in downtown Savannah, Georgia, USA and will take place from June 15-17, 2020.

For further reading:

http://impi.org/wp-content/uploads/2019/07/Wave-Newsletter-July-2019_Final-1-1.pdf

About the authors

Vasileios Ramopoulos received the M.Sc. degree in electrical engineering from Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, in 2014. At KIT, he is involved in the research and development of in-situ dielectric measurements systems and microwave applicators for industrial microwave processing.