

THE WAVE



The newsletter publication of the International Microwave Power Institute

July/August 2014



Kona Kai Resort's Private Beach

Venues for Fall Short Course and IMPI 49 Symposium Selected

With a successful IMPI 48 Symposium in the books, we spent the early part of this summer seeking out the best venues for our upcoming Fall Short Course and 2015 Symposium. Save the dates: you won't want to miss out on these IMPI events!

IMPI's Fall Short Course will be held Tuesday, October 21 - Thursday, October 23, 2014 at the Hyatt Regency at the Arcade in downtown Cleveland, Ohio, USA. The Short Course, which will focus on areas of interest to our members working with microwavable food products, will begin with a Welcome Reception on the evening of Tuesday, October 21st and sessions will be held the entire day Wednesday and half a day on Thursday. Nestle is sponsoring this year's Short Course. Hotel rooms will be offered at the special rate of \$149 per night (including in room internet). Program details will be posted to the IMPI website in the coming weeks.

The 49th Annual Microwave Power Symposium (IMPI 49) will be held Tuesday, June 16 – Thursday, June 18, 2015 at the beautiful Kona Kai Resort located on Shelter Island in San Diego, California, USA. Kona Kai Resort, which is less than 4 miles from the international airport, recently underwent a \$23 million renovation and amenities include a private beach, cabana, full service restaurant and gorgeous water views. The bustling Gaslamp district is less than 10 minutes away via taxi. Hotel rooms will be offered at the special rate of \$149 per night (including in room internet) and the resort fee has been waived. The Call for Papers will be issued in September 2014. Professor Ray Boxman of Tel Aviv University will serve as the Technical Program Chairman for IMPI 49. More details will be added to the IMPI website by early Fall.

We also plan to offer two more Webinars this September and November.

Letter from the President

by Bob Schifmann

One of the pleasures of spending the summer in the Catskill Mountains is my weekly breakfast with my friend and neighbor Dan, during which we discuss issues large and small, often suggesting ways of solving the problems of the world, at which we are always eminently unsuccessful. The other morning we got on the topic of the phrase "having the courage of your convictions", that we take to mean having the courage to stand up and be forceful and vocal if necessary about those issues in which you strongly believe. This is not as simple as it sounds. For example, what about expressing an antigovernment conviction in any totalitarian or near totalitarian state?

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Journal of Microwave Power and Electromagnetic Energy

*IMPI membership entitles you to complimentary access to full JMPEE articles in both the current Volume 48 and the JMPEE Archive. If you have not registered for access on our new website, visit www.jmpee.org and click the **Register** button in the top right of the screen. Enter invitation code: **JMPEE1ZEI1ATDOYELKSB7***

Allow one business day for your IMPI membership status to be confirmed. You will only be able to view the Abstracts if you don't register with the new site. Here are the papers published so far this year:

Volume 48, Issue 1:

Utilizing Microwave Susceptors to Visualize Hot-Spots in Trinitrotoluene

Charles A. Crane, Michelle L. Pantoya, Mohammad A. Saed, and Brandon L. Weeks

Novel Adjustable Microstrip Devices for Microwave Power Division and Impedance Matching

Elías de los Reyes, Javier García, David Marqués, Antonio Jara, and Ruth de los Reyes

Dielectric Properties and Temperature Increase of Zinc Oxide Dust Derived from Volatilization in Rotary Kilns

Ai Yuan Ma, Li Bo Zhang, Jin Hui Peng, Guo Chen, Chen Hui Liu, Hong Ying Xia, and Yong Gang Zuo

A Review of Microwave Coal Processing

Eleanor Binner, Edward Lester, Sam Kingman, Chris Dodds, John Robinson, Tao Wu, Peter Wardle, and Jonathan P. Mathews

Optimization of Microwave Roasting for Dechlorination of CuCl Residue from Zinc Hydrometallurgy

Shuaidan Lu, Shuchen Sun, Jike Lv, Ganfeng Tu, Chandrasekar Srinivasakannan, Shaohua Ju, and Jinhui Peng

Volume 48, Issue 2:

Direct Microwave Roasting of Arsenic-Bearing Pyrite Concentrates

Xiu Juan Su, Shao Jian Ma, Chun Lin He, Yu Shi Liang, and Yan Qing Chen

Chemical Reaction under Highly Precise Microwave Irradiation

Satoshi Fujii, Hiroki Kujirai, Dai Mochizuki, Masato M. Maitani, Eiichi Suzuki, Yuji Wada, and Noburo Mayama

Dielectric Properties of Beans at Ultra-Wide Band Frequencies

Richard Torrealba-Meléndez, María Elena Sosa-Morales, José Luis Olvera-Cervantes, and Alonso Corona-Chávez

Evaluating Applicator Designs for Heating Nanoparticle Flow Chemistries Using Single-Mode Microwave Energy

Daniel Peterson and Brian K. Paul

Microwave Anomalous Propagation Conditions in the First 100-m Altitude in a Tropical Location

Ojo Olalekan Lawrence, Ajewole Moses Oludare, Adediji Adekunle Titus, and Ojo Joseph Sunday

The Journal of Microwave Power and Electromagnetic Energy is now accepting papers. If you are interested in submitting a paper for JMPEE, please [click here](#).

President's Message Continued

Or, look at what happened to Giordano Bruno, the Dominican Friar who not only proposed theories regarding heliocentricism, but also that the sun was just another star moving in space, and claimed that universe contained an infinite number of inhabited worlds; proposals for which he was burned at the stake in 1600. He wasn't incorrect; it's just that his timing was bad. (By the way, did you know that about a quarter of the US population still believes that the sun goes around the earth?)

All of which brings me around to a new book "Virtual Unreality: Just Because the Internet Told You, How Do You Know It's True?" written by Charles Seife a professor of Journalism at New York University. In it, Mr. Seife suggests that the dissemination of digital information is in many ways "the most virulent, most contagious pathogen that humanity has ever encountered." What he is referring to is the ability of anyone to spread his or her convictions over the Internet with ease, regardless of whether those convictions are correct; more specifically convictions regarding microwave energy, microwave radiation and microwave ovens. So much of this appears in blogs in which the authors, mostly nonscientists, make inaccurate, and sometimes outrageous, statements about these items, often by simply cutting and pasting from other nonscientists. The result is a proliferation of misinformation. This came home to me as a result of two recent blogs written by Lynn A. Kuntz, editor of Food Product Design: "Fear of Food And the Consumer" and "Fear of Foods And Effective Science Communication". Both are well worth reading and are easily accessible on the Internet, and in which she refers to research published in the Journal Food Quality and Preference: "Ingredient-Based Food Fears and Avoidance: Antecedents and Antidotes" (May 20, 2014), To these I'd like to add the title for a blog I'd like to see written "Fear of Microwave Ovens And the Difficulty Of Effectively Communicating Their Safety to Consumers". In her blog about consumer fears, Ms. Kuntz refers to something called "confirmation bias", i.e. the "tendency to find and believe sources that confirm beliefs". Almost daily I look at many of these "hysteria" blogs that suggests the dangers of microwaves and I'm astonished not just by the author's words, but by readers' comments, most of which support the nonsense that is spouted by the author of the blog. When the Cornell professor, a co-author of the paper, was asked how to cope with this, he suggested the need for a series of statements from scientific sources that would satisfy the consumer about the reliability of the information being passed on. But in his own paper he refers to the fact that these food fears were more likely in mothers who are getting most of their information from the web. Well if that's true how can it be combated? How can accurate, scientifically-sound information be effectively disseminated? With the development of the World Wide Web we've created the greatest engine for disseminating both information and misinformation, and so far I haven't thought of an effective way of dealing with the latter.

Elsewhere in this newsletter you'll see a recap of IMPI 48 in New Orleans; if you were there I'm sure you'll agree that we all had a great time and it was a very worthwhile meeting. For those of you weren't, do you best to attend IMPI 49, details of which are underway as I write this.

Finally, this past month saw the passing of two important persons in our field: longtime IMPI member and former Chairman of the Board George Freedman, and Dr. Peter Glaser, who along with IMPI founding member Bill Brown, was a pioneer behind the microwave energy from space program. More about both of them are in this newsletter. I hope you're all having a good summer,

Bob



IMPI Elects Board of Governors for 2014-2015 Term

During the General Membership meeting on June 19th in New Orleans, the IMPI membership elected the Board of Governors. Subsequently, the new Board elected an Executive Committee to serve from June 2014-June 2015. Thank you to the following members for agreeing to serve:

Executive Committee Members

Mr. Bob Schiffmann, R.F. Schiffmann Associates, President
Dr. Ric Gonzalez, ConAgra Foods, Inc., Vice President
Mr. John Gerling, Gerling Applied Engineering, Inc., Treasurer
Mr. Corey Crooks, Graphic Packaging International, Inc., Secretary

Voting Board Members

Ms. Marie Jirsa, Hillshire Brands
Dr. Vadim Yakovlev, Worcester Polytechnic Institute
Dr. Ahmed Al-Shamma'a, Liverpool John Moores University
Mr. Justin Balousek, HJ Heinz
Dr. Ulrich Erle, Nestle

Corresponding Board Members

Dr. Sohan Birla, ConAgra Foods, Lincoln
Dr. Dorin Boldor, Louisiana State University
Mr. David Baron, dB Consulting
Dr. Juming Tang, Washington State University
Dr. Juan Aguilar, University of Nuevo Leon
Mr. Jean Paul Bernard, SAIREM
Ms. Joy Weis Daniel, Appliance Consultant
Prof. Ray Boxman, Tel Aviv University
Ms. Molly Poisant, IMPI

In Memoriam

George Freedman Remembrance on June 11th

Remembering Wayland's Leonardo da Vinci

There was a remembrance and celebration of the life of George Freedman on June 11th at 7:30 pm at the home of friends in Wayland. Mr. Freedman died at the Briarwood in Needham on March 21st. In many ways, George was Wayland's very own Leonardo da Vinci, a Renaissance man and inventor with over 25 patents, the Director of Raytheon's New Product Center, an author of five published books including two mysteries, a lover of the arts and the Boston Symphony Orchestra, and a veteran of the Pacific campaign in WWII. Attending Revere High School and MIT, George had an inventive mind with a passion for creating new products and inventions. [Read more...](#)

Dr. Peter Glaser, Microwave Power Visionary, Passes Away

Dr. Peter Glaser, the key visionary and inventor behind the proposed Space Solar Power System (SSPS), passed away in Lexington, MA on May 29. Dr. Glaser first published the proposal in *Science* in 1968. Soon thereafter, he was joined by Bill Brown, a founder of IMPI, who was developing the technology of microwave power transmission (MPT). This was needed to transmit microwave energy converted from solar energy in space to earth where rectennas convert the microwaves to usable electricity (50/60 Hz.), that then is distributed by power lines, etc. Bill passed away in 1998. [Read more...](#)

48 Annual Microwave Power Symposium Recap

The 48th Annual Microwave Power Symposium, held June 18-20, 2014 in New Orleans, Louisiana, USA, brought together 83 attendees from 16 countries and 21 states for three days of learning, networking and fun! Fifty-eight presentations were made during IMPI 48 and over a dozen people took advantage of the 2 short courses offered. It wasn't all work in New Orleans, over 50 attendees joined us for the Group Dinner in French Quarter!

Special thanks to our sponsors: Washington State University, USDA, Liverpool John Moores University and BEST Research Institute; and exhibitors: Gerling Applied Engineering, Richardson Electronics, Muegge GmbH, Neoptix, PSC, Inc and SAIREM. We are also very grateful to Technical Program Committee and Food Science & Technology Committee for their guidance over the past year.

Lastly, we would like to recognize Professor Ray Boxman of Tel Aviv University for serving as the Technical Program Chairman and Bob Schiffmann who chaired the Food Science & Technology Program. None of this would be possible without their tireless work and dedication to the Symposium.

INTERACTIVE IMPI *Direct links to Microwave News on the Web*

Can Microwave Ovens Help [Fight Crime?](#)

Report Published: [Microwaves in Roumania](#)

New Market Study: [Microwaves in Germany](#)

Calendar of Events

Workshop: Current Challenges for [Wireless Power Transfer](#), September 2, 2014, Washington, DC, USA

7th International Colloquium on Modeling for Electromagnetic Processing, September 16 - 19, 2014 Hannover, Germany <http://www.mep2014.uni-hannover.de/151.html>

IMPI Fall Short Course, October 21-23, 2014, Hyatt Regency at the Arcade, Cleveland, Ohio, USA www.impi.org

49th Annual Microwave Power Symposium, June 16-18, 2015, Kona Kai Resort, San Diego, California, USA www.impi.org

Do you have an upcoming event for us to list here? Email molly.poisant@impi.org for inclusion.



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