

# THE WAVE



*The newsletter publication of the International Microwave Power Institute*

September 2019



## IMPI's Fall Seminar to be Held at TurboChef HQ

At publication, over 30 attendees are registered for IMPI's Fall Seminar (formerly known as the Fall Short Course) which will be held November 6-8, 2019 at TurboChef Headquarters in Carrollton, Texas. Today is the last day to register at the early bird rate.

This year's Fall Seminar "*The Brave New World of Microwave & RF*" will examine topics of interest to our food company members, such as: consumer trends, labeling best practices, trends in frozen foods, sustainable packaging, food safety considerations and microwave cookware.

New this year, we will also examine advances in solid-state cooking and new microwave and RF technologies. In addition to the Welcome Address by TurboChef President, James Pool, keynote addresses will be given by Marie Molde of Datassential and Steve King of Alkar. The full [Schedule of Events and additional details are available here.](#)

All IMPI members are encouraged to attend the Solid State RF Energy's Section meeting, the day before the Fall Seminar, where the Section will collaborate on a new initiative centered around an open source Food Architecture tagging language.

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## PRESIDENT'S MESSAGE

During the week of September 9, I attended the 17th Annual AMPERE Conference in Valencia Spain, where I was joined by several IMPI members: Bernie Krieger, Ulrich Erle, John F. Gerling, Juan Aguilar-Garib, Graham Brodie, Klaus Werner, and Marilena Radiou. The conference was organized by the Polytechnic University of Valencia, and chaired by José M. Catalá Civera and Felipe L. Peñaranda Foix, both from the University. It was well attended with over 120 presentations, provided in three parallel sessions over three days, and with an audience of over 150. In two years, the next AMPERE Conference will be held in Gothenburg Sweden.

There are two issues I'd like to address in this message, one dealing with statistics, the other concerning the serious effects of inadequate product testing. As to the first, *Statistics*, I like to draw your attention to two current articles: "A Significant Problem": Scientific America, October 2019; "Your Number's Up": The New Yorker, September 9, 2019. Quoting from the former, "The use of p-values for nearly a century to determine statistical significance of experimental results has contributed to an illusion of certainty and reproducibility crises in many scientific fields. There is a growing determination to reform statistical analysis, but researchers disagree on whether it should be tweaked or overhauled." The importance of this is highlighted by the discovery that "In medicine, a study of 49 of the most cited medical publications from 1990 to 2003, found that the conclusions of 16% were contradicted by subsequent studies" (The New Yorker), and the situation in psychology is even worse. The problem comes about as part of the advent of "big data", and thus scientists and statisticians are looking at revising or tweaking the methodology of statistical analysis. As one who uses statistics extensively in my research and testing, this is a very important situation that I will follow closely and report to you in the future.

As to the second issue regarding inadequate product testing, its importance was brought to my attention by a serious injury sustained by a young woman in England. She followed a recipe she found online, that was prepared by a "food hack", for the preparation of hard-boiled eggs. She followed the recipe closely and when she looked in the container, the eggs exploded in her face, causing severe burns and almost a loss of eyesight in one eye. The recipe was quickly taken down from the Web, but using the Wayback Machine I was able to find it, and it was immediately obvious to me that whoever wrote it had no idea about how microwave ovens work and the difference between ovens. I can confidently say that this was an accident waiting to happen. This idea of "food hacks", i.e. persons who write these recipes, whom I suspect are amateurs, or poorly trained professionals, presents us with a major new problem. As I explained in my IMPI 53 presentation, "Fundamental Principles of Microwave Ovens: Requirements to Achieve Accurate Results and the Presentation Thereof", product testing is incredibly difficult, largely because of the enormous variety of performance characteristics in microwave ovens in everyday use. There are perhaps 2 1/2 to 3 billion microwave ovens in the world, each of which is different from every other one, and insuring the safety of microwavable products is a major part of the problems faced by the product and/or recipe developers. This field can't support amateurs or persons with limited knowledge and understanding of microwave ovens, producing products and recipes to which the public is exposed, but how can we stop them? I could go on, for many pages, with more evidence of extremely dangerous products in the marketplace, but I'll leave it here, possibly revisiting it again soon.

In the meanwhile, I hope to see you at the IMPI Fall Seminar, November 6 – 8: see more information about this elsewhere in this newsletter.

Best Wishes to All,



Bob Schiffmann, IMPI President

## IMPI Launches New & Improved IMPI.org Website

We are delighted to share our new and improved IMPI website: [www.impi.org](http://www.impi.org)

We've spent the past several months making the website more user friendly. On the homepage, you may now access the "**MEMBERS ONLY**" page by clicking the link in the top right side of the screen and entering the following password: **IMPI2019!**

The Members Only page has our current membership roster and an archive of "The Wave" newsletters. Members should continue to utilize the **ONLINE STORE** tab to renew their memberships, update contact information, register for Webinars, the Fall Seminar and the Symposium. JMPEE should still be accessed through your Taylor & Francis log in.

Be sure to checkout the other exciting additions to the website, including our Events Calendar, Solid State RF Energy Section page, Student Member and Corporate Member pages. We will continue to add more content to this website in the coming months.

### IMPI 54 SYMPOSIUM CALL FOR PAPERS RELEASED

Save the date for the [54<sup>th</sup> Annual Microwave Power Symposium \(IMPI 54\)](#), which will be held June 15-17, 2020 at the historic DeSoto Hotel in Savannah, Georgia, USA. The Call for Papers is [available here](#). The deadline for abstract submission is January 15, 2020. You may book your hotel room at the [special group rate of \\$159 per night](#), now.



## SOLID STATE RF ENERGY SECTION TO MEET ON NOVEMBER 5<sup>th</sup> in TEXAS, USA

Don't Miss Out on the Solid State Oven Opportunity.

The coming change from magnetrons to solid state microwaves will usher in entirely new ways for CPG (consumer packaged goods) food microwave heating. Keep up to date—and at your option, join in—with food companies, universities and the RF Section to collaborate on the RF Section's open source Food Architecture tagging language initiative.

IMPI's Solid State RF Energy Section will hold their next meeting from 1pm-5pm on Tuesday, November 5th at TurboChef Headquarters in Carrollton, Texas. The Section meeting is open to any current IMPI Member and is free of charge. The Agenda is [available here](#).

The Section's leadership consists of: Klaus Werner of pinkRF, David Lester of NXP, and John F. Gerling of Gerling Consulting who serve as Chairman, Secretary and Treasurer, respectively. John Mastela of Elite RF and Sanghun Lee of WavePIA serve as Deputy Chairmen for the Americas and AsiaPac. The Deputy Chairmen's main role is to represent the Section within their region and hence to save on travelling time and cost for the organization.

Following the meeting, the Section members will take part in an informal dinner at a local restaurant. To RSVP for the Section meeting and dinner, please RSVP to Alicia Standridge by November 1st at [admin@impi.org](mailto:admin@impi.org)

### JMPEE Volume 53, Issue 3 Released

JMPEE access is available free of charge to all IMPI Members. If you are not yet utilizing this benefit, please contact Alicia Standridge at [admin@impi.org](mailto:admin@impi.org) and your password will be sent to you. Volume 53, Issue 3 is now available and contains the following papers:

Aguilar-Garib J. Editor's message Applied science and engineering for solving society needs

García-Mosqueda C. et al. Microwave heating as a post-harvest treatment for white corn (*Zea mays*) against *Sitotroga cerealella*

Genc N., Durna E. Simultaneous Optimization of Treatment Efficiency and Operating Cost in Leachate Concentrate Degradation by Thermal-Activated Persulfate Catalysed with Ag (I): Comparison of Microwave and Conventional Heating

Fu W. et al. Investigation of Magnetron Injection Locking and Cascaded Locking by Solid-State Microwave Power Source

Moslem [S.et](#) al. The influence of nickel ions on the electric behaviour of P2O5–ZnO–Na2O glassy system

Liu Y. et al. High temperature dielectric properties of Ludwigite and its effect on microwave heating process

## **IMPI Fall 2019 Webinars Announced**

IMPI members are encouraged to take part in the Fall 2019 Webinar Series. Webinars are free of charge to all IMPI Members and \$99 each for non-members. [Register here.](#)

### **IMPI Webinar: Impedance Matching in High-Power Microwave Applications**

Oct 24th, 2019 from 11am-12pm EST

Instructor: Vladimir Bilik

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Impedance matching is a technique for maximizing the power delivered from a microwave generator to a load – an object of interest to be processed by the microwaves.

The webinar will introduce the concept of impedance matching, provide the elementary theory behind it, and illustrate its importance in high-power microwave engineering. We will discuss the specifics of impedance matching in high-power industrial applications in contrast to techniques typically employed in communications. We will examine basic circuit elements and components suitable for high-power impedance matching. The main attention of the webinar will be devoted to automatic impedance matching of time-varying loads under difficult signal conditions, a very common scenario in magnetron-powered industrial plants.

### **IMPI Webinar: A Technical Overview of Applicators for Microwave Heating**

Nov 19th, 2019 from 11am-12pm EST

Instructor: John F. Gerling, Gerling Consulting

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The term “applicator” in the context of microwave heating applies to a device used to expose microwave energy to a material to be heated in a controlled manner. Microwave applicators, also referred to as chambers or cavities, can have any of several different configurations of varying shape and size as best suited for a particular purpose. This webinar covers the basic applicator types, technical characteristics that distinguish them and their variations from others, and practical considerations for their selection for common heating processes.

## IMPI MEMBER NEWS

### Radoiu and Schiffmann Awarded AMPERE Medal in Valencia

*AMPERE Founder, Dr. A.C. (Ricky) Metaxas, presented the AMPERE Medal to two IMPI Members earlier this month in Valencia, Spain. Thank you to Dr. Metaxas for the following write up and photo. Congratulations to Marilena and Bob on this honor.*



**Radoiu, Metaxas & Schiffmann at AMPERE**

*The AMPERE MEDAL is an award for outstanding contributions in the field of Microwave or RF Heating, first awarded at the 2015 AMPERE conference in Craków. It is the highest honour that our organisation can bestow and goes to individuals who have gravitas and have worked tirelessly promoting the use of RF/microwave energy in academe, industry, commerce and related areas. Nominations were invited from the AMPERE membership, followed by members of the AMPERE Management Committee each casting a vote. Exceptionally this year two eminent individuals were recognized for this honour so the 2019 AMPERE MEDAL has been awarded to Dr. Marilena Radoiu and Mr. Robert Schiffmann.*

*Mr. Schiffmann, who has been involved with microwaves for over 50 years, was President of IMPI during 1973-82 and was a Board member for over 20 years. The Board of Governors at the IMPI Symposium in Colorado in 2010 elected Bob once again as President. He has steered IMPI back from a very precarious financial position to a vibrant scientific society. Accordingly, given also his continuous support for AMPERE, the AMPERE Management Committee recognizes his outstanding services to our field by bestowing upon him this prestigious award.*

## IMPI MEMBER NEWS CONTINUED

**Happy 90<sup>th</sup> Birthday to IMPI Fellow, Bernie Krieger!**



Bernie Krieger, former IMPI president and vice president, and longtime member of IMPI, celebrated his 90th birthday in August with a party for his friends and family. Bernie is the cofounder and CEO of Cober Electronics Inc., a leading manufacturer of industrial microwave systems. Cober was founded in 1966, and its microwave-systems can be found throughout the world. It is especially renown for its microwave rubber processing systems. Besides running Cober, Bernie finds time to indulge his passions for bird shooting and fly-fishing.

*Do you have Member News you would like us to include in The Wave Newsletter? Send your info to [molly.poisant@impi.org](mailto:molly.poisant@impi.org) for inclusion in an upcoming edition!*

### CALENDAR OF EVENTS

**We've moved online! Check out IMPI's New  
Calendar of Events and send us any events you  
would like us to add!**

[www.impi.org/events](http://www.impi.org/events)

## IMPI

PO Box 1140

Mechanicsville, VA 23111 USA

[www.impi.org](http://www.impi.org)