

# THE WAVE



*The newsletter publication of the International Microwave Power Institute*

November 2019



## IMPI Holds Successful Fall Seminar at TurboChef HQ

Fifty attendees participated in IMPI's Fall Seminar "*The Brave New World of Microwave & RF*" from November 6-8, 2019 at TurboChef Headquarters in Carrollton, Texas.

The Fall Seminar consisted of a dozen presentations and panel discussions over the three days. James Pool, President of TurboChef delivered the Welcome Address and keynote presentations were given by Marie Molde of Datassential and Steve King of Alkar.

Twenty-five attendees participated in the Microwave Fundamentals Short Course, instructed by IMPI President, Bob Schiffmann. Over 30 attendees participated in the Group Dinner at Saltgrass Steakhouse.

In addition to the sessions, Fall Seminar attendees enjoyed an in-depth tour of the TurboChef facility and were treated to meals prepared by the TurboChef staff.

Photos from the Fall Seminar can be seen on pages 6-7.

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*Cover Photo: Attendees participate in a hands-on demo at TurboChef on November 8<sup>th</sup>.*

## PRESIDENT'S MESSAGE

### *Column by Bob Schiffmann*

A new problem has raised its ugly head – one that's not likely to go away, but get worse. I've written before about the World Wide Web as a great source of misinformation and here's an illustration: A young woman in Manchester (UK) was seriously injured when she attempted to boil two eggs in her microwave oven. She was following a recipe written by a Food Hack for the website Delish, titled: "How to Hard Boil Eggs Perfectly, Every Time."

- Place the eggs in a microwave safe bowl and cover with at least 1/2 inch of water
- Add 1/2 teaspoon of salt per egg ("This is a CRUCIAL step. Salt ensures that the egg won't explode").
- Microwave on high for 6 to 8 minutes, depending on the strength of your microwave

Well, explode they did, and the young woman almost lost her sight in one eye. The recipe was quickly taken down from the website, but it was restored, using the Wayback Machine, not by Delish, but by those investigating the incident. Those of us familiar with microwaving eggs would know that, by following this recipe, an accident was bound to occur, and that's the reason for my concern. You see, the World Wide Web has allowed people to give free expression to their ideas and abilities, often creating what are known as "hacks", and, in this case, the person writing the recipe is known as a "food hack". Try as I might, I couldn't find an online definition of the term, but I gather that hacks are amateurs who are expressing their ideas and abilities. In the case of someone writing recipes for use in a microwave oven, or creating non-food products for the microwave oven, this has a serious potential for injury. As we know, all microwave ovens are different: they vary in output power, cavity size, type and location of launch, presence or absence of turntables, etc., and this causes them all to perform differently. Hence, when introducing a new product or a recipe, it's essential that it be tested in a large variety of microwave ovens. For many years, I and my laboratory tested products for companies and would always test them in at least 10 to 20 different microwave ovens in order to determine, not only how well the products performed, but we'd cause them to fail so we could determine how bad a potential failure could be – would the product explode, catch fire, etc.? Now I doubt that this food hack, or other persons introducing products, know how to properly test the products to be microwaved, to be sure that they are safe. The result is that many seriously dangerous products reach the marketplace; for example, wheat bags. I have a folder on my computer devoted to injuries caused by microwaving wheat bags and gel-heating pads. Their intended use is for sore muscles, but wheat bags are sometimes used as bed-warmers and have caused at least two recorded deaths. Because they tend to heat internally, and because the air in the oven is cool after being microwaved, their surfaces usually feel warm immediately after microwaving, not hot. However, after a minute or two, the surface can get dangerously hot! These and gel-heating pads have caused serious skin burns, and wheat bags may also catch fire.

A recent report by *Fire & Rescue of New South Wales*, detailed a death resulting from a fire caused by a microwaved wheat bag. A fact sheet from the Fire Department reads: *Don't overheat the wheat bag by placing it in the microwave longer than specified by the manufacturer. Only use wheat bags for direct application to body aches and pains, as they are not designed to replace hot water (sic) bottles for warming beds.* The instructions are correct, but given the wide range of performance characteristics of microwave ovens, they are inadequate. Many injuries have occurred from wheat bags, so I don't understand why they are still on store shelves.

Some of you have attended my Microwave 101 course, or have otherwise heard me speak on the need for proper testing of products intended to be microwaved, in order to ensure their safety. It is obvious that is often not done, and the problem has been exacerbated by the proliferation and faulty, and often dangerous, information on the World Wide Web. My safety crusade continues!

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## PRESIDENT MESSAGE CONTINUED

The establishment and use of proper cooking/heating procedures tailored for the products to be microwaved is necessary. Amateur recipe writers (a.k.a. *food hacks*), and many product manufacturers, don't follow sufficient test-guidelines, or even know what they are. We need to have tighter regulations and further education to prevent injuries from happening in the future.

On a lighter note, I want to take a minute for a shout-out to James Pool and Turbochef for hosting our November Fall Seminar at their facility in Carrollton Texas. It was a great seminar, and the folks at Turbochef did an outstanding job of providing excellent facility, wonderful food, and a great tour of their facility.

Finally, I wish you all a wonderful Thanksgiving, but take it easy on the turkey, etc.

Best Wishes to all,



Bob Schiffmann, IMPI President

## SOLID STATE RF ENERGY SECTION UPDATE

IMPI's Solid State RF Energy Section met in Texas on November 5, 2019. Twenty members of the Section held a half day meeting and dinner just prior to the start of the Fall Seminar. Topics of discussion included Section By-laws, annual operating plan for 2020, working group updates, the open-source tagging language initiative and the Section membership drive. Section membership is open to all IMPI members; those interested in joining the Section should email [alicia.standridge@impi.org](mailto:alicia.standridge@impi.org)



## IMPI 54 Call for Papers Deadline Approaching, First Keynote Announced

January 15, 2020 is the last day to submit abstracts for the 54th Annual Microwave Power Symposium. IMPI 54 will take place June 15-17, 2020 at the historic DeSoto Hotel in downtown Savannah, Georgia. The [Call for Papers and additional details](#) are available at [www.impi.org](http://www.impi.org). Dr. Graham Brodie of the University of Melbourne serves as the Technical Program Chairman for IMPI 54.

We are delighted to announce our first keynote speaker, Dr. B. Reeja Jayan of Carnegie Mellon University who will cover, *“Why microwave-heating is more than just heating?”* IMPI 54 will also feature a Short Course, *“Introduction to Multiphysics Modeling for Microwave Power Applications,”* instructed by Dr. Vadim Yakovlev of Worcester Polytechnic Institute.

IMPI 54 will feature an Exhibitor Showcase followed by a Welcome Reception on June 15. There will be keynote presentations, invited, oral and poster presentations, as well as panel discussions on June 16 & 17. Various networking opportunities, including a Group Dinner the evening of June 16th will be available. Updates on speakers will be added to the Symposium page over the next several months; the full program will be released by March 1. [Registration is now open!](#)

IMPI 54 will also feature a Student Competition with cash awards given for best oral and best poster presentation by a student. A limited number of student travel scholarships will be awarded as well. Dr. Candice Ellison is serving as the Student Competition Chairman.

Muegge GmbH is the Platinum Sponsor for IMPI 54; [various sponsorship packages](#) are available. Additionally, there are a limited number of exhibition booths available to non-corporate members. Interested companies should contact [molly.poisant@impi.org](mailto:molly.poisant@impi.org) as soon as possible to secure their sponsorship or exhibition booth.

Hotel rooms at the DeSoto Hotel are being offered at a special group rate of \$159. You may [book your room here](#).

The Solid State RF Energy Section will hold a meeting at the same venue on Thursday, June 18th. Additional details will be made available shortly.



*The DeSoto Hotel, Savannah, Georgia and Dr. B. Reeja Jayan, Assistant Professor, Carnegie Mellon*

## IMPI Fall Webinars Held in October and November

Thank you to Vladimir Bilik and John F. Gerling for instructing our 2-part Fall Webinar Series. There was outstanding turnout at both of these webinars!

### Impedance Matching in High-Power Microwave Applications

*Dr. Vladimir Bilik, S-TEAM Lab*

### A Technical Overview of Applicators for Microwave Heating

*Dr. John F. Gerling, Gerling Consulting*

If you missed the webinars and would like to watch the recordings, or view the PPTs, please contact [alicia.standridge@impi.org](mailto:alicia.standridge@impi.org) and she will provide the link and password. As a reminder, your IMPI membership includes complimentary access to four Webinars each year (\$99 each non-members)! If you have a topic or would like to propose a speaker for an upcoming webinar, please let us know!

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## Calendar of Events

IMPI's newly designed website features a Calendar of Events, with both IMPI events as well as Partner Events: [www.impi.org/events](http://www.impi.org/events)

*If you have an event you would like us to add to our Calendar, please let us know.*

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## News from Around the Web

Little Explosions: GroWave Raises \$900,000 for tech that [kills weeds with microwaves](#)

[IoT-Endowed Microwave Drawer](#) Signals Sharp's Connectivity Direction

Microwaving food in plastic: [Dangerous or not?](#)

[Microwave Medical Applications](#)

FALL SEMINAR PHOTOS – TURBOCHEF HQ – NOVEMBER 2019



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## IMPI MEMBER NEWS

The IMPI Board of Governors is pleased to welcome two new Corresponding Board Members. Mr. Brian Blackwell of Odyssey Technical Solutions and Dr. Shawn McKeown of Graphic Packaging International.



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### **Happy 90<sup>th</sup> Birthday to former Chairman of the IMPI Board Verle Blaha!**

You can read about Verle Blaha in this [1982 Microwave World Article here.](#)

*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!*

*You Did It! Thank you to all of you who joined IMPI this year. We are now officially at 200 international members! Our next issue of The Wave will be out on December 30<sup>th</sup>; until then stay connected with us on Social Media!*

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