

THE WAVE



The newsletter publication of the International Microwave Power Institute

September 2020



IMPI to Host Fall Seminar Virtually, “*The New Normal: Navigating the Microwavable Food Industry*”

IMPI will host our Fall Seminar on October 20-22, 2020 from 10am-1pm EST daily. The Seminar will focus on topics such as consumer behavior & trends, microwavable food product development, alternative proteins, ingredients, new applications, innovations and technologies in the food industry, regulatory considerations and advancements in the Smart Kitchen.

Confirmed speakers include:

- Dr. Melanie Abley, Deputy Director, Risk Management and Innovation Staff, Food Safety Inspection Service, USDA
- Mr. Jordan Bar Am, Associate Partner, McKinsey & Company
- Ms. Lynn Dornblaser, Director of Innovation, Mintel
- Mr. David Kusuma, Vice President of Research & Product Innovation, Tupperware Corporation
- Mr. Julian Mellentin, Founder, NewNutrition Business
- Ms. Trupti Palav, Principal Scientist, Tate & Lyle LPC
- Mr. Frank Saracinni, Technical Sales Manager, Tate & Lyle LPC
- Ms. Barb Stuckey, President & Chief Innovation Officer, Mattson
- Mr. Michael Wolf, Creator, Smart Kitchen Summit & Publisher, The Spoon
- Mr. Robb Ziegler, President/Creative Director, Brandimation

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Fall Seminar Continued

IMPI is offering both full and one-day registrations for professionals, students and groups (i.e. companies/academic institutions.) IMPI members may attend the 3-day Fall Seminar for \$150 USD; group registrations are available for \$450 USD for a company/institution-wide registration. Group registrations are only available to IMPI members. Registration includes access to all sessions, copies of the PPTs after the event and the ability to watch the recorded videos for one month following the live event. [REGISTER TODAY!](#)

Similar to our Virtual Symposium last June, the Fall Seminar will include opportunities for networking via Virtual Meet & Greet each morning, interactive coffee breaks and a Virtual Welcome Reception. The program will include a mix of keynotes, invited talks and panel discussions. [Learn more about the Fall Seminar here.](#)

IMPI Announces Fall Webinar Series

“Intellectual Property Basics and Best Practices for Innovators”

Thursday, Oct 8th 11AM-12PM EST

Sara Fish – Associate – Fish & Richardson P.C

Karan Jhurani – Associate – Fish & Richardson P.C.

“Best Practices in Developing Safety Warnings and Labels”

Thursday, Oct 15, 11AM EST.

Dr. Gerald M. Goldhaber – President & CEO – Goldhaber Research Associates LLC

Webinars are FREE OF CHARGE for all IMPI Members; Non-members: \$99 for one webinar; \$159 for both.

[REGISTER TODAY!](#)

Additional details on our Fall Webinar Series speakers [can be found here.](#)

IMPI 55 Symposium Call for Papers to be Released in Early October

The Technical Program Committee (TPC) for [IMPI's 55th Annual Microwave Power Symposium \(IMPI 55\)](#) has announced the Call for Papers will open on October 1, 2020. Dr. Graham Brodie, University of Melbourne, will serve as Chairman of the TPC.

IMPI 55 will be held June 28-30, 2021 at the DeSoto Hotel in Savannah, Georgia, USA. Those authors whose paper for IMPI 54 was accepted, but deferred their presentation until IMPI 55, will be contacted by the IMPI Office in the coming weeks.

Sponsors for IMPI 55 include: **Muegge GmbH** (Platinum Sponsor); **Microwave Techniques LLC & Crescend Technologies** (Silver Sponsors); **Leanfa srl** (VIP Reception Sponsor) & **Odyssey Technical Solutions** (Group Dinner Sponsor). Any company interested in sponsoring IMPI 55 should contact molly.poisant@impi.org for additional details.

PRESIDENT'S MESSAGE

I've always been fascinated by numbers. As a child, I would sit in the NYC subway or trolley car (Any of you remember trolley cars? Their steel tracks were torn up to become war-material.), looking for numbers in the adverts that I would try to add or multiply in my head. This memory came to me recently, when I received my monthly issue of Scientific American, celebrating its 175th year of publication: its "demisemiseptcentennial anniversary". It is the old oldest continuously published magazine in the USA. "When the magazine began, the universe didn't seem as big as it is today. Astronomers thought our Milky Way was the extent of the universe. Now we know we inhabit just one of over 100 billion galaxies." The magazine is filled with origin story such as these, but more about that later.

First, have you ever wondered why we place almost magical properties to some numbers, e.g., we celebrate centennial's, bicentennial's, in this case 175, and, more generally, numbers that ending five and zero. Consider that in poker, we place extraordinary significance upon a royal flush, and yet, the chances of receiving exactly those cards, is no different from any other set of random cards. When it comes to numbers, our instincts aren't always correct. I watched a fascinating documentary on Netflix ("Connected", season one, episode 4: "Digits"), regarding something called Benford's law. Did you know that when you have a collection of large numbers, such as the populations of the states in the USA, or of the major countries around the world, and examine only the first digit, the number 1 appears about 30% of the time, 2 about 17% of the time, and the others decreasing after that, so the number 9 appears less than 5% of the time? The IRS makes use of this when reviewing income tax returns, examining all the numbers, to catch fraud when made-up numbers don't fit the Benford scheme. Another useful example is that, by examining the digital bits that make up the image in a digitized photograph and determining whether they obey Benford's-scheme, it is possible to determine if the photograph is a fake. It's a fun-program to watch, not as serious as you may think, but for many, it presents information you would never suspect.

Now, as to origins, I want to draw your attention to some things related to our interest in microwave heating. One of our long-time members, Ken Eke, has written an overview of the origin of the magnetron and its important use during the World War II; you can find the article in the Archive section of the IMPI website as well as a link in the Member News Section of this newsletter. This history, and more, is described in a fascinating book of nearly 500 pages, "The Invention That Changed the World: how a small group of radar pioneers won the Second World War and launched a technological revolution." The first-half of the book reads like a detective story.

Percy Spencer, the "father" of the microwave oven, played a major role in the development of the magnetron/radar development story. Spencer, with only a grammar-school education, determined how to mass-produce the magnetrons that had been effectively hand-made previously. So, Percy Spencer was partially responsible for the allies winning World War II.

Molly and I, with the assistance of team-members Marie Jirsa, Eric Brown, Ulrich Erle and Sean McKeown, have been hard at work putting together the program for this year's Fall Seminar – you'll learn more about that in the Newsletter.

The Fall colors have started at my Upstate New York home in the Catskill Mountains – they'll be spectacular in another couple of weeks, and then as the cold weather sets in, my wife & I will be out of here by then, back to the Big Apple.

Bob Schiffmann, IMPI President





IMPI SOLID STATE RF ENERGY SECTION

The Solid State RF Energy Section will hold its annual Business Meeting from 9am-11am EST on Friday, October 23, 2020. The Section will elect officers for the 2020-2021 term and discuss the priorities and plans for the year ahead. The meeting is open to all IMPI Members. Kindly RSVP to alicia.standridge@impi.org if you would like to participate.

Member News

One of our long time members, Ken Eke, has written [an overview of the origin of the magnetron](#) and its important use during the World War II.

IMPI member, Dr. Satoshi Horikoshi, has published a new book: [RF Power Semiconductor Generator Application in Heating and Energy Utilization](#)

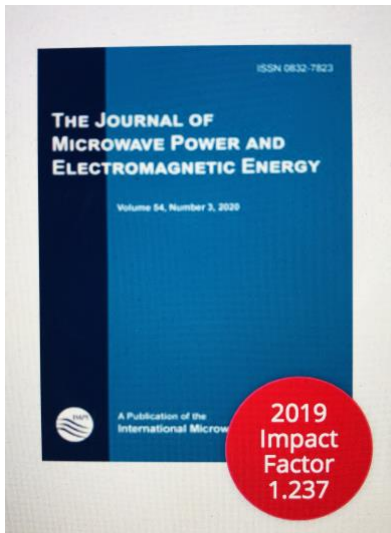
We would like to wish past IMPI President & current IMPI Fellow, Bernie Krieger, a speedy recovery!

Do you have professional or personal news you would like to share in this section? Please send your submission to molly.poisant@impi.org by October 15, 2020 for inclusion.

Partner News

Through our partnership with the Smart Kitchen Summit, IMPI members will save \$100 on their registration fee. [Follow this link](#) for the discounted rate.





JMPEE Volume 54: Issue 3 Available in Late September

Access to Volume 54 (and the entire JMPEE Archive) is available to members as part of your membership. Contact alicia.standridge@impi.org if you need your log in information resent to you. Here is the list of papers that will appear in Volume 54, Issue 3:

1. "Editor's message: a glance to virtual conferences" by Juan Aguilar
2. "Effects of different drying methods on quality changes and energy characteristics of tilapia fillets" by Linbao Wei, Weiqiang Qiu, Yingshan Jin, Ruilin Zheng, KyungHo Row, Yudong Cheng, and Yinzhe Jin
3. "Optimal Design of Compact Microwave Fractional Order Differentiator" by Usha Gautam, Tarun Kumar Rawat, Apoorva Aggarwal, and D.K. Upadhyay
4. "Comparison of Chemical composition, antioxidant and antibacterial activity of Callistemon citrinus skeels (Bottlebrush) essential oil obtained by conventional and microwave assisted hydrodistillation" by Prashant Mande and Nagaiyan Sekar
5. "Equivalent analytical model of plain weave composite fabric for electromagnetic shielding applications" by Abdullah Oğuz Kizilçay
6. "Determination and Modelling of Dielectric Properties of the Cherry Leaves of Varying Moisture Content over 3.30-7.05 GHz Frequency Range" by Habib Dogan, Ibrahim Bahadır Basyigit, and Abdullah Genc

News from Around the Web

[Effect of Microwave Heating](#) on the Acrylamide Formation in Foods

[Smart Microwave Oven Market](#) | Global Industry Analysis, Segments, Top Key Players, Drivers and Trends to 2025

7 Ways the Pandemic Has Changed [How We Shop for Food](#)

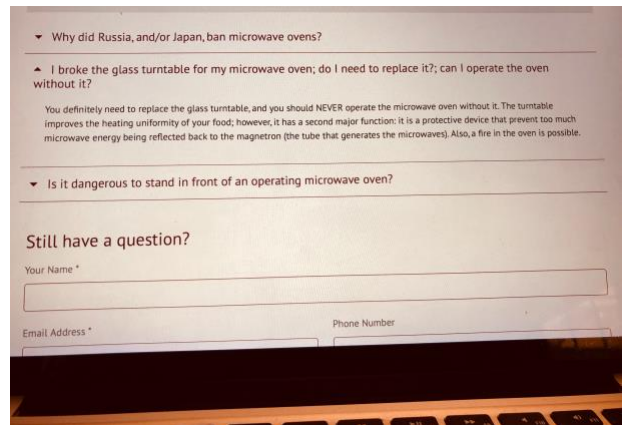
CALENDAR OF EVENTS

IMPI's Calendar of Events is [available here](#).

If you have an event you would like to feature on our Calendar, please send your event details to info@impi.org by the 15th of the month.

IMPI's on Insta & Has Launched a MWO FAQs Page!

In August, IMPI launched [on Instagram](#) and created a new [Microwave Oven FAQs](#) page. These platforms will allow us greater reach to the end-consumers we serve!



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