

THE WAVE



The newsletter publication of the International Microwave Power Institute
July 2022 – Special Symposium Edition



Symposium Reunites IMPI Community in Savannah, GA, USA

One hundred and seven attendees (107) from eighteen countries (18) gathered at the DeSoto Hotel in Savannah, Georgia last month for the 56th Annual Microwave Power Symposium (IMPI 56). An additional eight authors presented virtually, lending to a total of forty-eight (48) presentations over the three-day event. This was the Institute's first in-person event since November of 2019.

Dr. Vadim Yakovlev of Worcester Polytechnic Institute served as the Technical Program Committee Chair; Yakovlev was assisted by Vice Chair, Dr. Candice Ellison. Ellison also served as the Chair of the Student Competition.

Four students received cash awards, a certificate and a one-year student membership to IMPI. Congratulations to Morgan Chen, Carnegie Mellon University (Best Oral Presentation), Sean Brown, West Virginia University (Best Poster Presentation), Megan Robinson, University of Colorado - Boulder & Alazar Araia, West Virginia University (Honorable Mention Awards).

The pre-Symposium activities included a Workshop on Computer Modeling and Solid State Luncheon and presentation. IMPI 56 opened with an Exhibitor Showcase and Welcome Reception. Sixteen (16) Exhibitors participated in the event: 3DRFE Corp, Ampleon, Crescend Technologies, Leanfa, Microwave Techniques, MKS, Muegge Gerling, Odyssey Technical Solutions, pinkRF, QWED, RFHIC, Richardson Electronics, SAIREM, the Solid State RF Energy Section, Symphony Microwave and Wave PIA.

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Cover Photo from left: Student Competition Winners, Chen, Brown, Robinson and Araia featured in photos with IMPI 56 Technical Program Vice-Chair and Student Competition Chair, Dr. Candice Ellison.

IMPI 56 Symposium Continued

Dr. Robert Welton of Oak Ridge National Laboratory provided the Keynote Address on Wednesday morning, followed by a Plenary Invited talk by Dr. Zoya Popovic, University of Colorado - Boulder. A full day of concurrent presentations, poster and exhibitor sessions, and networking functions concluded in the late afternoon with a Solid State Panel. Following the IMPI Business Meeting on Wednesday evening, one-hundred attendees and guests took part in the Group Dinner at Cha Bella Restaurant.

Thursday opened with a Keynote address by Dr. Jan Boshoff of Nu:ionic, followed by a Plenary Invited talk by Dr. Alberto Maistrello of Consorzio RFX. Concurrent sessions resumed for the day until the attendees gathered for the Closing Ceremony & Awards. It was announced that IMPI 57 will take place at the Curtis Hotel in Denver, Colorado, from June 27-29, 2023. See page 8 for more details.

IMPI 56 would not have been possible without the leadership of TPC Chair Dr. Vadim Yakovlev, WPI, and Vice Chair, Dr. Candice Ellison, NETL. IMPI also wishes to thank the Members of The Technical Program Committee, Organizers of the Special Sessions, speakers, attendees and our Sponsors: Muegge Gerling (Platinum Sponsor), Microwave Techniques (Silver Sponsor), Odyssey Technical Solutions (Group Dinner Sponsor) and Leanfa srl (VIP Reception Sponsor).



Top row from left: Welton, Popovic, Boshoff & Maistrello. Second row: Yakovlev & Ellison, Marzena Olszewka-Placha, QWED (Computer Modeling Workshop Instructor), VIP Reception; Bottom row: Schiffmann Memorial Table, IMPI Board of Governors, VIP Reception.

PRESIDENT'S MESSAGE

By all accounts, IMPI 56 was a huge success! Comments from attendees, both solicited and unsolicited, were overwhelmingly positive, and suggestions for IMPI events going forward were thoughtful and immensely helpful. We're well on our way with planning for IMPI 57, having selected a venue that fulfills a popular recommendation that it be near a major international airport (Denver, Colorado). Indeed, while Savannah is charming and pleasant, even I experienced an airport connection nightmare on my return home from there. We hope to never again subject symposium attendees to such travel related challenges!

A topic area in the IMPI 56 technical program that received much attention and praise was, not surprisingly, solid state RF technology. After all, IMPI's Solid State RF Energy Section, which itself has seen rapid growth since it was formed just a few years ago, specifically focuses on this topic. Back then I became a true believer in and champion of the future of solid state RF technology in microwave applications. Long before, though, I was and still am a strong believer in magnetrons as a vital and, for many applications, the only practical source of high power microwaves.

Still, some may be asking, does solid state RF technology pose a threat to the near term or even long term survival of magnetrons? If so, should manufacturers of magnetrons and magnetron-based equipment be worried? These questions remind me of the "Osborne Effect," a term some of you old-timers (like me!) may recall from the early days of personal computers, which states that prematurely discussing future, unavailable products damages sales of existing products (https://en.wikipedia.org/wiki/Osborne_effect). Osborne Computer Corporation enjoyed robust sales of its Osborne 1, the first commercially successful portable computer (I have a working model on display in my office). And as any product manufacturer must do to remain competitive, Osborne sought to meet market demands by developing new models with enhanced features, functionality and performance. But by prematurely announcing these products long before they were to become available, sales of the Osborne 1 dried up, profits sank, and the company soon after went belly up.

I know, I know – the Osborne Effect hardly applies to any perceived "competition" between magnetrons and solid state RF. Few would argue that solid state doesn't offer significant advantages over magnetrons, just as few would say magnetrons don't have any advantages over solid state. One or the other will be preferred, for various reasons, for any given application. Over time, though, the balance may and likely will shift in favor of solid state. The shift won't be sudden but rather gradual – very gradual – agonizingly so for some and thankfully for others. Either way, it's a reality that all manufacturers of magnetrons and the equipment in which they are used must consider in their long term strategic planning. All have plenty of time, in fact years and years, to avoid the fate suffered by Osborne.

Meanwhile, I recognize that IMPI shouldn't be doing a disservice to its members by promoting one technology at the expense of another. The existence of its Solid State RF Energy Section in the absence of a Magnetron RF Energy Section, just as heavy focus on solid state RF at the symposium, might give that impression. For this reason, IMPI 57 will offer opportunities to highlight magnetron-based technologies and applications on a similar level as solid state. In my view both are equally important and necessary for the growth of microwave and RF applications. I encourage everyone to share your views on this and offer your insights and recommendations as we plan ahead.

Speaking of planning, many of you will recall participating in discussions at the Topical/Regional Tables during IMPI 56 lunches. These discussions were the culmination of the tremendous work done by IMPI's Strategic Planning Committee. Responses have been compiled and will be key elements used in finalizing an action plan. Huge thanks to the Committee and those who participated by sharing your ideas!



John F. Gerling
President, IMPI

IMPI Fall Seminar to be Held in Round Rock, Texas in Nov, Hosted by Odyssey

IMPI is excited to announce the return of our in-person Fall Seminar! The two-and a-half day event will be held November 1-3, 2022 in Round Rock, Texas. Odyssey Technical Solutions will serve as the host. The program is under development and will be released in August. Stay up to date with the latest information at: impi.org/events/fall-seminar/



IMPI SOLID STATE RF ENERGY SECTION

- Great presence during IMPI 56
 - Section booth (courtesy of WavePia) included:
 - Solid state-power oven demonstration leading to super juicy sirloin steaks cooked medium rare (see photos); very enjoyable – in particular with Odyssey rub....
 - A grow lamp was demonstrated which gives a bright, sun-like spectrum – ideally suited for light-demanding tomato farming
 - A lunch meeting updating the community on the latest developments, pros and cons of the technologies and the future of microwave cooking
 - A full session and fruitful panel discussion on Solid State Technologies
 - A business meeting on Friday morning discussing the plans and activities for the year ahead. A highlight will likely be the presence of the Section at the Food Tech part of the CES show (Las Vegas in January 2023).
- The Section is doing well from a financial and participation point of view. We are still looking for talent to support our upcoming activities. One office, the important Secretary role, is vacant, after all. Anyone interested in serving please contact K. Werner.



PARTNER EVENTS

4GCMEA will be held August 17-20, 2022 in Chengdu, Sichuan, China; it is hosted by Sichuan University and the China Association of Microwave Power Applications (CAMPa). Learn more at: campa.com.cn



The **AMPERE** 2023 conference will be held in Cardiff, United Kingdom in September of 2023. Exact date TBD. More details, and Call for Papers, coming soon here: www.ampere2023.com

John F. Gerling Inducted as Fellow of IMPI; Voting Board Members and Executive Board Elected, Schiffmann Memorial Awards Unveiled at Annual General Membership Meeting

Originally Published June 21, 2022, on [IMPI.org/News](https://www.impi.org/News) - The International Microwave Power Institute (IMPI), the leading scientific organization dedicated to connecting the global microwave and RF energy community, is pleased to announce several major developments out of their Annual General Membership Meeting last week in Savannah, Georgia, USA.

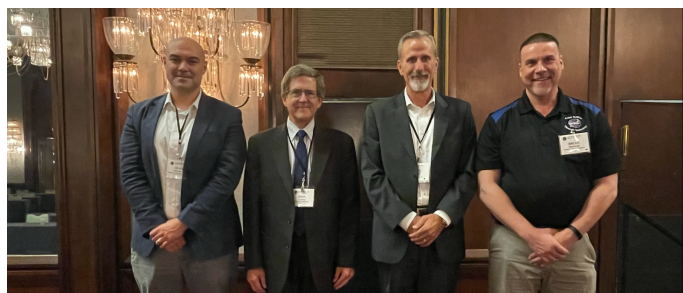
Mr. John F. Gerling of Gerling Consulting, Inc. was inducted as the 36th Fellow of the Institute on June 15th. Gerling's association with IMPI began in 1984; he has served in a variety of leadership positions since the mid-1990's, including Interim President since September 2021 and Treasurer since 2011. The Fellow Nominating Committee, chaired by IMPI Fellows, Dr. Juan Aguilar of the University of Nuevo Leon and Dr. Juming Tang of Washington State University, nominated Gerling after an extensive review process.

When presenting the nomination to the Board, Tang and Aguilar stated, *"This recommendation recognizes [Gerling's] outstanding leadership in IMPI and contributions in advancing the knowledge and designs of microwave systems in diverse applications, including NASA space programs, industrial heating, and consumer goods."* Letters of recommendation provided by Dr. Ralph Bruce of Vanderbilt University, Mr. Jerome Czajkowski of Richardson Electronics and Mr. Mohammad Kamarehi of MKS, cited Gerling's technical contributions to the field as well as his strong ethics and service to the Institute and larger microwave/RF community. The Board of Governors was unanimous in their decision to bestow the Institute's highest honor to Gerling.

The membership re-elected three Voting Board Members: Dr. Eric Brown of Conagra Brands, Dr. Ulrich Erle of Nestlé R&D, and Dr. Klaus Werner of pinkRF. Voting Board Member, Marie Jirsa of Tyson Foods, chaired the Nominating Committee. Voting Board Members serve a three-year term.

Following the Annual General Membership Meeting, the Board met to elect their leadership for the coming year. Gerling was elected as President of IMPI, Mr. John Mastela of EliteRF was re-elected as Vice President, Mr. Brian Blackwell of Odyssey Technical Solutions will serve as Treasurer and Dr. Sean McKeown of Graphic Packaging International was elected Secretary. The officers will serve a one-year term.

IMPI began the annual meeting by unveiling the *Robert F. Schiffmann Leadership Award and Memorial Scholarship*. Bob Schiffmann, who was active in IMPI since 1967 and served over twenty-years as IMPI's President, died in September of 2021. Schiffmann's wife and several members of his family were present for the unveiling of the awards and received a commemorative plaque from IMPI. Scholarship contributions can be made at [IMPI.org](https://www.impi.org) (Online Store).



From left: IMPI's 2022/2023 Executive Board from left: Dr. Sean McKeown (Secretary), Mr. John F. Gerling (President), Mr. John Mastela (Elite RF) and Mr. Brian Blackwell (Treasurer). Middle: Mr. John F. Gerling, inducted as an IMPI Fellow, receives a plaque from Dr. Juan Aguilar. Right: Gerling presents a plaque to members of the Schiffmann family.



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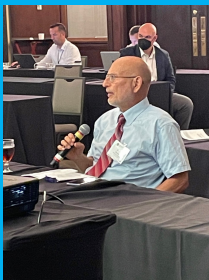
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IMPI 56 SYMPOSIUM PHOTOS

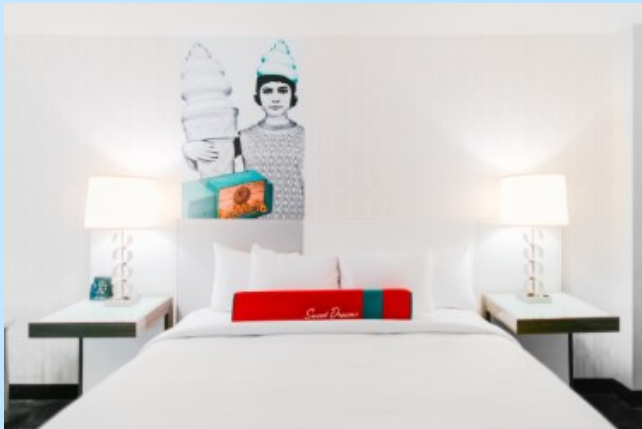
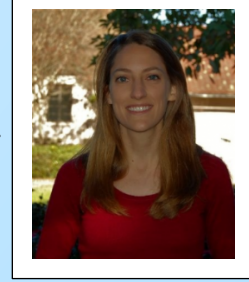


IMPI 57 to be Held in Denver, Colorado, Led by Ellison and Jayan

IMPI is excited to announce that the **57th Annual Microwave Power Symposium (IMPI 57)** will return to the Curtis Hotel in Denver, Colorado, from June 27-29, 2023. IMPI was last in Denver in June of 2010.

Dr. Candice Ellison, of the National Energy Technology Laboratory, will Chair the Technical Program Committee. Ellison will be joined by Dr. B. Reeja Jayan, of Carnegie Mellon University, who will serve as the Vice Chair.

Ellison has a long history with IMPI, having served as the Vice Chair of IMPI 56, and Chair of the Student Competition since 2019; she also sits on the Board of Governors. Jayan has previously served as a Keynote Speaker at the Symposium (IMPI 54) and sat on the Technical Program Committee (IMPI 56). We are delighted to have them leading our efforts. The Call for Papers for IMPI 57 will be released in early September 2022.



Images courtesy of the Curtis Hotel, Denver, Colorado, USA

IMPI 56 Photos



IMPI 56 SYMPOSIUM PHOTOS



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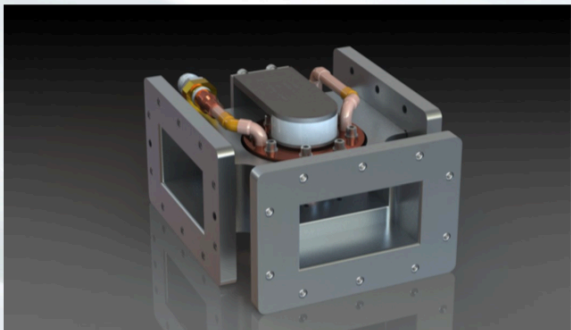
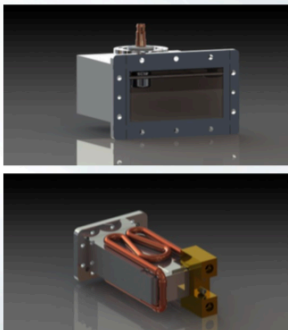
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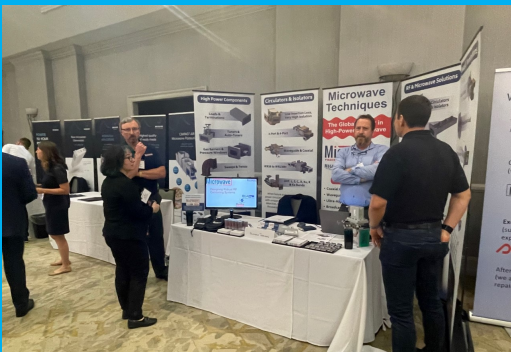
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CALENDAR OF EVENTS

Stay up to date with IMPI Events by visiting our [Calendar of Events page](#). If you have an event you would like to add to the Calendar, please contact molly.poisant@impi.org

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