The panel sessions at this year’s IEEE Microwave Theory and Techniques Society International Microwave Symposium (IMS2018) in Philadelphia have been put together with an eye toward the conference’s theme, “Microwaves, Medicine, and Mobility.” These sessions have been scheduled during the lunch break, and box lunches can be preordered at the time of online conference registration (box lunches will not be available for purchase on site).

Tuesday’s panel focuses on a very pertinent topic, with the session “Can a Residential Wireless Gb/s Internet Connection Compete with Wired Alternatives?” This session is jointly sponsored with the RFIC Symposium and will include expert panelists from many technology sectors (wireless, fiber, satellite, digital subscriber line, and cable) discussing the opportunities for each technology to provide consumers with high data-rate services at an affordable cost.

On Wednesday, we will switch gears and focus our attention on a panel titled “Body Wearable Technology: Is It Still Relevant, and What Is Its Future?” Here, panelists from industry (both component and system), academia, and the military will discuss their views on the directions in which this oft-mentioned technology will move.

On Thursday, we are offering two panel sessions during the lunch break that promise to be both entertaining and educational. The first relates to fifth-generation (5G) millimeter-wave (mmW) technology: “5G PA/FEM: Si or III-V: Who Will Win the Race?” Panelists from both silicon (Si) and III-V semiconductor foundries, as well as companies working on mmW front-end-modules (FEMs) and system development for challenging 5G applications, will offer their views on which will be the ultimate solution. The other Thursday session, “Utilization of RF/Microwaves in Medicine,” will be a unique event for the IMS in that all the panelists are physicians! These medical experts will discuss how microwave technologies can be used in a range of medical applications.
Wednesday


Body wearable technology has been incorporated into a vast range of industries/applications, whether to improve the mobility and situational awareness of a modern-day soldier, monitor the physical exertion of an elite athlete, or simply change the color of a piece of clothing to suit the mood of the person wearing it. While there have been many successful applications of wearable technology and significant adoption within contemporary society, there have also been some notable failures (Google Glass?). In some cases, it could be argued that the technology is really a solution looking for a problem. In this session, expert panelists from a variety of backgrounds (industry, academia, and military) will share their views on this topic, as well as debate the usefulness and future directions of body wearable technologies.

Thursday

“5G PA/FEM: Si or III-V: Who Will Win the Race?”

5G is proposed as the next major revolution of wireless communications, where mmW FEMs will be delivering wideband power, but with highly reduced size and cost. This requires innovative solutions in semiconductor/device technology and circuit topologies. Traditionally, state-of-the-art FEMs are implemented on III-V [gallium arsenide (GaAs)/gallium nitride (GaN)] due to their demanding performance requirements (power/bandwidth/efficiency). However, Si devices are very attractive due to their maturity and ability to cost-effectively integrate complex digital and RF/analog circuitry. Recently, Si has been overcoming the high-frequency barrier, while GaN/Si-on-insulator (SOI) is maintaining performance at a low cost and operating voltages. Both Si and III-V technologies will be represented, with panelists from leading foundries/industries. The panel will review state-of-the-art industrial developments in Si [Si germanium/bipolar complementary-metal-oxide-semiconductor (BiCMOS) and SOI/CMOS] and III-V (GaN/SOI/Si carbide and GaAs) devices, compare their performance, and discuss future trends and challenges for 5G deployment. The panel will also debate critical issues such as the use of the right technology/process (Si or III-V) and beamforming topology (all-digital massive multiple input/multiple output, RF, or hybrid) for 5G FEMs.

“Utilization of RF/Microwaves in Medicine”

Over the past three decades, collaboration between physicians and engineers has dramatically increased, to the benefit of modern society. Biomedical engineering departments (most found in engineering schools with some in medical schools) offer seemingly unlimited opportunities and continue to attract large numbers of students. To benefit from the merits of interdisciplinary cooperation and facilitate the transfer of technology to the market, existing large corporations, start-up medical companies, and research funding agencies now demand strong collaboration between engineers and physicians. With this in mind, IMS2018 has made the subject of RF/microwaves in medicine a major conference theme. The physicians on this panel will discuss the use of RF/microwaves in their respective fields. Topics ranging from microwave hyperthermia therapy for reoccurrences of breast cancer and advances in RF renal denervation to back pain management using RF will be highlighted.

IMS2018 5G Summit and Demo Forum (continued from page 43)

following the keynote address will cover topics including standards, spectrum use, operator and service-provider perspectives, infrastructure issues, and systems and circuits, as well as emerging applications.

The day-long summit will include a lunchtime panel, “Millimeter-Wave ICs in Smartphones: What They Will Look Like in Two, Five, and Ten Years.” The afternoon session will feature Jin Bains from Facebook delivering a presentation, “Bringing the World Closer Together.” The 5G Summit will also include an overview of the IEEE 5G Initiative by Ashutosh Dutta of AT&T, the initiative’s cochair. Other distinguished speakers will cover topics such as

- massive multiple input/multiple output from long-term evolution to new radio
- vehicle-to-everything technology and 5G
- 5G vision and experimental trials from a service-provider perspective
- RF integrated circuit (RFIC)/complementary-metal-oxide-semiconductor (CMOS) techniques for 5G and beyond
- RFIC/CMOS transceivers for 5G
- test and measurement challenges for commercial 5G
- 5G test bed as service.

5G Special Demos

As noted earlier, the 5G Summit Organizing Committee decided this year to put together a 5G Demo Forum in addition to the summit. Companies are encouraged to participate in the Demo Forum, which will be open to all conference attendees. The forum will be held on the exhibition floor of the Pennsylvania Convention Center. Participating companies will receive a 5G Demo kiosk including a monitor, counter, graphics panel, cabinet, stool, 500-W electrical outlets, and carpet. Companies are also invited to present a talk in the 5G Pavilion’s theater.

We look forward to seeing you at the 5G Summit in Philadelphia!