2011 IEEE Topical Meeting on Biomedical Radio and Wireless Technologies, Networks, and Sensing Systems

The IEEE Topical Conference on Biomedical Wireless Technologies, Networks, and Sensing Systems (BioWireleSS) will premier in sunny Phoenix, Arizona, at the Renaissance Glendale Hotel 16–20 January. This two-day topical conference will be a vital part of the IEEE Radio and Wireless Symposium, featuring the latest developments in wireless biomedical technologies, networks, and sensing systems.

The wireless revolution has begun to infiltrate the medical community with patient health monitoring, telesurgery, mobile wireless biosensor systems, and wireless tracking of patients and assets becoming a reality. The rapid evolution of wireless technologies coupled with powerful advances in adjacent fields such as biosensor design, low-power battery operated systems, and diagnosing and reporting for intelligent information management has opened up a plethora of new applications for wireless systems in medicine. Papers featuring innovative work will be presented in the following areas of biomedical wireless technologies, networks, and sensing systems:

- wireless technologies for micromedical sensors
- wireless positioning technologies in medicine
- microwave imaging for biomedical applications
- personal area networks and body area networks
- advanced wireless digital systems including Energy Scavenging for Health Monitoring
- microwave systems for biological applications
- microwave interaction with biological tissues
- coexistence and modeling of wireless technologies in medical environments
- biomedical devices for remote patient monitoring
- high data rate protocols and processing for biosignals
- microwave systems for therapeutic biomedical applications

The conference will provide a healthy mix of actual clinical work incorporating wireless technologies with more fundamental science and engineering research in this area. Sessions will feature world-renowned invited speakers in their respective research areas, covering a wide range of topics related to all aspects of the conference. We are excited about this emerging area of research and look forward to the coming together of medical professionals, engineers, and industry representatives.

We also hope you take advantage of the sunshine and warmer temperatures in Phoenix by playing a round of golf, checking out the local boutiques, or even taking a day hike.

We look forward to seeing you in sunny Arizona!

—Mohamed R. Mahfouz and Rizwan Bashirullah
Cochairs IEEE BioWireleSS 2011

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implant size, power dissipation and system functionality. Wireless powering of biomedical implants is primarily via low frequency inductively coupled links as at low frequencies the RF heating due to tissue absorption is minimized. And while data telemetry between extracorporeal and in vivo devices is typically implemented by modulating the amplitude or frequency of the power carrier and/or changing the load impedance of secondary coil, highly power efficient communication links are feasible by optimizing and separating the power and data links. For optimum data link performance, the choice of operating frequency and antenna design becomes critical. These basic design considerations have been shown in the context of in vivo biomedical systems such as implantable visual and neural interfaces and ingestible capsule technologies.

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