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SUMMIT
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Technical Discourse—One Idea Always Leads to Another

Gary Breed
Editorial Director

One of the recurring topics in my editorials is the value of personal interaction among engineers. With the upcoming International Microwave Symposium in Atlanta, this is a good time to discuss this subject once again. I always return from a conference or trade show with lots of new information about both business and technology—more than I could possibly investigate as fully as I'd like!

I suspect many engineers have the same stimulating experience. I'm willing to bet that something like this series of events has happened to you:

You attend a paper on a topic that is not in your primary area of specialization, but is either somewhat related to your work or simply sounds interesting. In the course of delivering the paper, the presenter makes a simple statement that has a direct impact on your work, but in a completely unexpected manner. As a result you solve a particularly sticky problem. Or, perhaps you realize a new approach for improved performance.

For example, after attending his first paper on "defected ground planes," an attending engineer realized that the out-of-spec spurious response in his amplifier-filter design could be a problem with a resonance within the ground plane metal of the printed circuit board. I never heard the result, but he certainly was excited to have a potential solution to a troubling performance problem.

At another conference, a group across the table at an evening reception was discussing thermal analysis. This was a few years ago, and one of the engineers had attended a paper on silicon carbide power devices. The author had reviewed thermal performance computations and made a few off-hand comments about energy density and heat transfer. Those comments triggered ideas that were excitedly discussed with the engineer's colleagues—these were IC designers, not power amplifier designers, but apparently they were already planning improvements to the heat dissipation in the devices they were working on.

There are plenty of good stories about incidental comments that are included in a live presentation, but are rarely included in the version published in the proceedings, such as: "Oh, '*XYZ*' resistors have noticeably less noise than other common brands in this circuit." Or, "We had better results

with *'ABC's'* laminates because they have less variation in the thickness and less roughness of the copper layer." Detailed knowledge like this is invaluable when working at the highest levels of performance.

One of the enjoyable parts of my editor's job is that I get to investigate many different subjects and learn as much as my time allows. The downside is that I don't get to pursue many things at great depth, since my work is not traditional engineering development. Instead, most of my time involves presenting the work of other engineers.

Although they are not editors, working engineers also need to know what is happening elsewhere in their profession. Most engineers are like me in that they must give focused attention to a specific task. However, a broader view of related technical work is important, and the previous examples are only part of the reason.

An even bigger reason is that technology and applications are always changing, and seemingly different areas regularly cross paths. An obvious example is the melding of digital and RF techniques. What was once the realm of esoteric military or research systems is now incorporated in the simplest and lowest-priced consumer products.

Important Events

During the next few months there are several important conferences for readers of *High Frequency Electronics*. At the top of the list are the International Microwave Symposium, June 15-20 in Atlanta; the Antennas & Propagation Symposium and URSI National Radio Science Meeting, July 5-12 in San Diego; the EMC Symposium, August 18-22 in Detroit; and European Microwave Week, October 27-31 in Amsterdam.

As you attend these or other events, I recommend that you try to accomplish several tasks. First, you need to improve your knowledge in your specialty, so be sure to meet and talk with others who share your interest. Next, make an effort to learn something new. Pick a subject that piques your curiosity or perhaps investigate an area that is another part of your company's work. Finally, take a look at the entire range of topics covered in the conference. This will give you valuable insight into the type of work being pursued around the industry. Who knows? One of them might be your next assignment!

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