

Graduate Seminar



Opening 95-450 GHz to Civil Use: Opportunities and Sharing Challenges

Michael Marcus

**Director, Marcus Spectrum
Solution LLC**

Thursday, November 16th 4:30 PM Scaife Hall 125

Abstract:

Radio technology is subject to more national and international regulation than many other technology of interest to EEs because of the finite nature of spectrum and the possibility of interference to other spectrum uses. But many of the basic concepts of spectrum policies were adopted decades ago when the frequencies involved had very different characteristics than the upper reaches of spectrum that are becoming feasible for use today. In addition today's technology gives options that were not imaginable decades ago. In the US there are no rules that allow timely access to spectrum for technologies above 95 GHz. Innovators face years of uncertainty on whether their technology can enter commercial use and this in turn may stifle commercial R&D. In the US and internationally there is also ambiguity at present for access to spectrum above 275 GHz. Until 1995 the limit of FCC rules was 40 GHz and a decision that year moved it up to 77 GHz resulting in a spurt of new R&D, some of which fostered the now pending 5G cellular technology. This talk will review the issues of moving the 95 GHz barrier to new technology further up in the spectrum and the resulting potential for technological innovation.

Bio:

Michael Marcus was overeducated in electrical engineering from MIT. Prior to working at FCC for almost 25 years, he worked at Bell Labs, served in the U.S. Air Force, and analyzed electronic warfare issues at the Institute for Defense Analyses.

At FCC his work focused on proposing and developing policies for cutting edge radio technologies such as spread spectrum/CDMA and millimeterwaves. Wi-Fi and Bluetooth are results of his early leadership.

He is now Director of Marcus Spectrum Solutions LLC, an independent consulting firm based in the Washington DC area and focusing on wireless technology and policy. He also teaches at Virginia Tech. He was recognized as a Fellow of the IEEE and received in 2013 the IEEE ComSoc Award for Public Service in the Field of Telecommunications "For pioneering spectrum policy initiatives that created modern unlicensed spectrum bands for applications that have changed our world."

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SEMINAR NOTES: (REFRESHMENTS SERVED AT 4:00 PM)