

SiGe and Ga! Ga Tech that is... Dr. Steven H. Voldman



SiGe (pronounced like “Ziggy”) is Silicon Germanium (SiGe), and “Ga” is not Gallium, but Georgia. SiGe has its place in the semiconductor industry, and in Georgia – with SiGe, of course, there is work to be done in ESD protection of Silicon Germanium. Silicon Germanium started in IBM research to extend the usage of bipolar transistors for the IBM large bipolar-based servers. But, the world changed, and the “Big Iron” servers went to CMOS, then it took a long time to figure out what to do with it. Well, due to Analog Devices, it was kept alive in analog design, and then eventually found a home in RF applications. Silicon Germanium now exists in IBM, Jazz, TSMC, and other foundries around the world. A leading expert in Silicon Germanium and center for SiGe research is Georgia Tech, formally Georgia Institute of Technology.

Georgia Tech is centered in mid-town Atlanta. The campus is partially integrated with the city area, with research buildings on both sides of a highway. Georgia Tech’s campus occupies 400 acres in the city of Atlanta, where 20,000 undergraduate and graduate students receive a technology based education.

...Ironically, I was working in the next building integrated into the Georgia Tech campus. Adjacent to the campus are “incubator” businesses buzzing with all types of startups, and small corporations. Quellan Inc, is filled with many Georgia Tech graduates (now Quellan employees) working on analog and mixed signal design.

My host for the visit was Professor John Cressler. John has a large research group working on different aspects of SiGe from cryogenics

to radiation effects. John Cressler previously was at IBM T.J. Watson Research working on SiGe as part of Bernie Meyerson SiGe team.

For the ESD lecture, the majority of attendees were from the SiGe team, with about 20 attendees.

John noted that “Yes, we have ESD issues when we are doing our experimental work with SiGe”. Of course, without ESD protection devices

And the first person to do ESD work on SiGe technology? Yours truly...

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