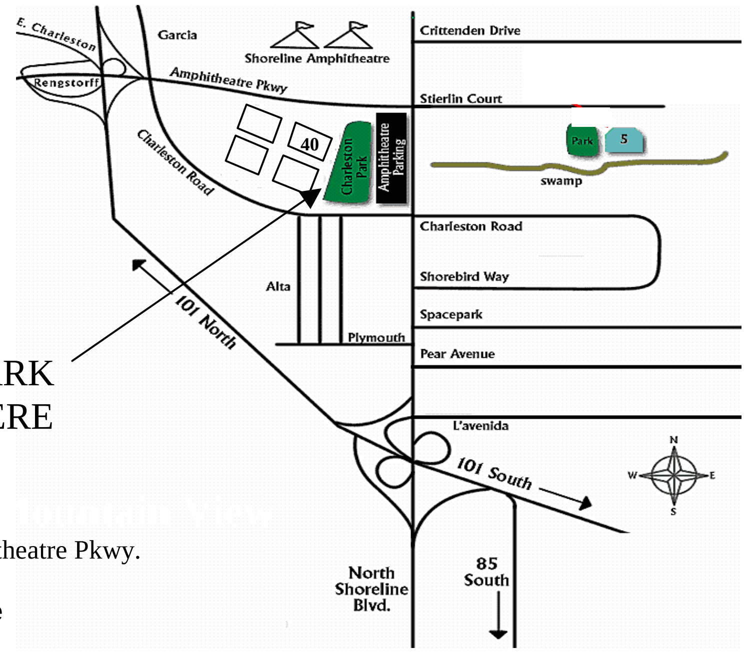
SCV-CHAPTER OF THE IEEE EMC SOCIETY MEETING LOCATION



PARK
HERE

1600 Amphitheatre Pkwy.
Building 40
Ozone Café

MEETING TIME:
Social – 5:30 PM
Presentation – 7:00 PM

Dated Material - Meeting Notice
Address Service Requested
Spectral Lines

IEEE SCV EMC Society
c/o N. Pischl
P.O.Box 4570
Mountain View, CA 94040-5070

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www.scvemc.org **Santa Clara Valley Chapter of IEEE Electromagnetic Compatibility Society**

March 2002 Issue

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$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$

$$\nabla \times \vec{H} = \frac{\partial \vec{D}}{\partial t} + \vec{J}$$

$$\nabla \bullet \vec{D} = \rho$$

$$\nabla \bullet \vec{B} = 0$$

SCV EMC Society Meeting
Tuesday, March 12, 2002

Date: March 12, 2002 (second Tuesday of the month)
Time: 5:30 Social, 7:00 Presentation
Place: 1600 Amphitheater Parkway, SGI Bldg 40, Mt View, CA
Speaker: Franz Gisin, Manager, EMC/SI Design, Sanmina Corporation

How to Div Grad Kink and Curl Electrons Into
Generating Unwanted Radiated Emissions

Anyone who has spent any length of time wandering around within the EMC discipline, will, on occasion, take time out to pause and reflect on exactly what is it about pushing electrons around on conducting materials that causes them to generate propagating electromagnetic waves in their wake. We already know the size of the structure plays an important role. Structures excited at their natural resonant frequencies radiate at higher levels. We also know different shaped structures, whether they are optimized for maximum radiation - for example an antenna, or optimized for minimum radiation – for example a collection of information technology equipment assembled on a turntable for an EMC emission test, radiate with different efficiencies. If we can gain a better understanding of the relationships between structure size and shape, electrons in motion, and propagating electromagnetic waves, then we can become better EMC engineers by not designing in these kinds of structures into our products. We know Maxwell's equations accurately describe all electromagnetic phenomena, and so a good starting point is to disassemble these deceptively compact equations and see if we can gain any insight by looking at them in richer detail. We can also gain understanding by modeling and simulating structures that we often encounter in the EMC profession, for example, printed circuit boards and their associated traces, cables, and electronic enclosures. From these two approaches we can then formulate some practical "best design practices" that will help us build products that radiate with minimum efficiency.

Bio for Franz: Franz Gisin received his BS(EE) from the University of Idaho in 1972, and his MS(Applied Math) from Santa Clara University in 1986. Franz has been active in the EMC field for over 25 years. He is currently Manager of EMC and Signal Integrity Design at Sanmina, the worlds largest EMS manufacturer of high performance printed circuit boards and backplanes. He is a past IEEE EMC Society Distinguished Lecturer, and past member of the IEEE Board of Directors. Currently he is vice-chair of TC-10, Signal Integrity, and Steering Committee Chair of the 2004 International EMC Symposium, Santa Clara, CA.