

# Spectral Lines



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

January 2001 issue

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## SCV EMC Society Meeting "THE PHYSICS OF ELECTROMAGNETICS WITHOUT ABSTRACT MATHEMATICS" Tuesday, January 9, 2001

The January meeting of the Santa Clara Valley EMC Society will be held at SGI in Mountain View, 1600 Amphitheatre Pkwy., building 40, in the Presentation Center above the lobby. The social gathering will start at 5:30 PM, and food and drinks will be available. The technical presentation will start at 7:30 PM. A map with the location of the SGI campus is available in this newsletter.

Abstract - The basic point source of electromagnetic fields -- the charge element -- is derived and described with basic physics and high-school mathematics. The charge element is a simpler point source than the current element -- it has five field components, whereas the current element has seven -- yet these two basic field sources are shown to be equivalent.

The physical causes of the two H-field and three E-field components of the charge element are easily explained, and they are kept obvious with the descriptions derived for those components. Simple examples are then given to show how to use charge elements to better understand the fields of full-size currents, and the physical origins of those fields.

Scott Bennett was a radar repairman in the USAF (1948-52); an EE student at PA State University (1952-55); a Field Service Tech. for GE Co. (1955-60); and an EE student at Syracuse University (1960-67). At Syracuse he earned the BEE ('63), MSEE ('65), and Ph.D. ('67); he was a NASA Fellow while earning the MSEE, and an Instructor of EE while earning the Ph.D.

Scott then was an Assistant Prof. at VA Polytechnic Institute (VPI) from 1967 to 1970; a Staff Engineer for Burroughs Corp. in City of Industry, CA from 1970 to 1974, and an MTS of Hewlett-Packard Co. in Loveland and Fort Collins, CO from 1974 to 1990. He taught a senior level course in electromagnetics at VPI for three years, and he specialized in EMC at HP for 13 years. Since his "retirement" in 1990, he has been working harder than ever -- to free electromagnetics from the abstract mathematics with which it is usually taught, and to treat it more like the physical science it is.

Anyone interested in presenting an outline of EMC-related topics should contact Tom Cokenias (trephonc@macconnect.com) at 650-726-1263.

For more information about the newsletter and its distribution, please contact the editor Neven Pischl (npischl@cisco.com) at 408-527-7874.

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

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

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

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

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**BRING A COLLEAGUE**

**BULLETIN BOARD**

Every Second Tuesday of the Month: IEEE SCV EMC Society Meeting; Hans Mellberg 408-391-9694  
Every Third Tuesday of the Month: EOS/ESD Society Meeting; Dr. Leo G. Henry 510-249-6318  
Every Fourth Tuesday of the Month: Product Safety Society Meeting; Mark Montrose 408-247-5715

**Our chapter's web site is at [www.scvemc.org](http://www.scvemc.org).**

If you wish to subscribe to the EMC-Product Safety e-mail list, you can do so by sending a mail to "majordomo@majordomo.ieee.org", with the text "**subscribe emc-pstc**" in the body of the message. This Forum is operated by the Product Safety Technical Committee of the IEEE EMC Society, and was founded to discuss product safety, EMC, and other product regulatory issues.

And for those who have interest in Signal Integrity, here is how you can subscribe to the Signal Integrity List, an email list that discusses topics related to this important aspect of hardware design. To subscribe to the si-list, send the text "**subscribe si-list**" in the body (not the subject line) of an email message to "majordomo@silab.eng.sun.com".

Some interesting information about IC high-speed design can be found at [www.chipcenter.com](http://www.chipcenter.com).

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Santa Clara EMC Society provides for a limited scholarship to a qualified student majoring in EMC related studies at SF State University. A selection committee will determine eligibility. For details, please contact Zorica Pantic-Tanner at SFSU (415-338-7739 or [zpt@sfsu.edu](mailto:zpt@sfsu.edu)).

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Dated Material - Meeting Notice  
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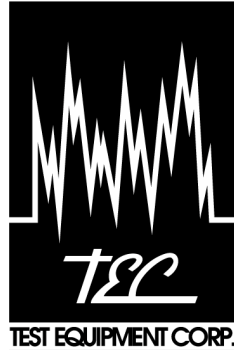
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