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October 2008

Rock River Valley Section

[www.ieee.org/rrvs](http://www.ieee.org/rrvs)

Event

Sense

The Institute of Electrical and Electronic Engineers, Inc.

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RRV Section and EMC Chapter Meeting

# Modeling & Simulation for Signal Integrity & EMI

**WHEN** Thursday, October 30, 2008

## WHERE

Rock Valley College, Woodward Technology Center, Rooms 117/119. I-90 to Riverside Blvd., exit and go west to Mulford Rd. Go south to 2nd light, turn east into RVC. Follow road to left to last building on right.

## AGENDA

6:00 PM Networking  
6:30 PM Dinner  
7:30 PM Presentation

## PROGRAM

The talk is focused on how signal integrity, power integrity and EMI-EMC performances affect each other and how computer-aided analysis facilitates better designs.

Designing for Signal Integrity (SI) is designing digital nets for clean one-zero-zero-one signals that meet switching logic protocols. Designing for Power Integrity (PI) is designing the power distribution system to deliver clean power to Integrated Circuits on the Printed Circuit Boards with low voltage bounce on power and power return. Voltage bounce,  $dv$ , is primarily due to  $dv = L(di/dt)$  where  $L$  is the parasitic inductance in the power distribution system. In SI, reflections are a possible source of radiated and conducted emissions. In PI, power - power return voltage

bounce are a high probability source of radiated and conducted emissions. SI, PI and EMI interact with each other through conduction and coupling mechanisms. Coupling and coupling mechanisms usually look the same whether emitting or picking up EMI so a design that doesn't perform well on emissions usually doesn't perform well on susceptibility.

This presentation will tie together SI, PI, EMI-EMC, the effects of semiconductor technology and the use of EDA tools to design for passing regulatory requirements.

## SPEAKER



**Mr. Roy Leventhal**, co-owner of Leventhal Design & Communications, consults in semiconductor modeling and simulation in IBIS, SPICE and S-Parameters, signal integrity, power integrity, and EMC (electromagnetic compatibility).

Roy's 50-year career includes extensive experience in RF circuits, semiconductor applications, components, reliability, failure analysis, signal integrity and EMI-EMC. He has integrated his diverse knowledge in the book *Semiconductor Modeling: For Simulating Signal, Power, and Electromagnetic Integrity*, Springer 2006 (ISBN: 0-387-24159-0).

Roy has been active in the IBIS Committee, having served as librarian for IBIS model sources and on the sub-

committee for model quality. Roy is currently active in the IEEE EMC Society Technical Committee 10 (TC10): Signal Integrity. He has taught signal integrity at Cadence Design Systems, 3Com Corporation, and IEEE EMC Society meetings. He is currently working on the Boeing 787 program, doing EMI/EMC testing, test procedure generation, and modeling and simulation.

Roy earned his MSEE at Illinois Institute of Technology and has performed additional post-graduate studies in semiconductor device physics and RF microwave circuit design.

## MEAL INFORMATION

Dinner will feature Grilled Chicken Breast and a vegetarian entree. The costs are: member: \$5, non-member: \$10, student members: \$2, student non-members: \$5. Please make **dinner reservations** by calling **Ginger at 815-394-5696** or sending her an email ([ginger.spinasanta@hs.utc.com](mailto:ginger.spinasanta@hs.utc.com)) by **Tuesday, October 28, at 5pm**. Please include the following: your name, phone number, email address, IEEE member number, and choice of entree. Unemployed members may call the treasurer for special arrangements.

## NOTE

The meeting is open to the general public. You need not be an IEEE member to attend. Guests are welcome. Please call Ginger at 815-394-5696 for questions.

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### **September RRVS Meeting Recap**

The Rock River Valley Section extends its thanks to Mr. Rakesh Dhawan, President of Electric Motion Systems LLC, for a highly informative presentation on Advanced Electric Vehicle Concepts for Designing Electric Bicycles. The presentation was very well attended with about 60 in the audience, and 35 IEEE members and the public enjoyed test riding the two electric bikes that Mr. Dhawan was kind enough to bring with him.

### **November Joint RRV Section and NIU Student Branch Meeting Preview**

Please plan on joining us for our annual joint section-student branch meeting to be held in Northern Illinois University's Engineering Building in DeKalb, IL, on Thursday, November 20, 2008. NIU Professor Don Zinger is currently making arrangements for the meeting. We will post the meeting topic and speaker on our website as soon as the information is available.

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### **Northern Illinois University Student Branch Officers**

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*Messages for student officers can be left at the NIU Dept of Electrical Engineering, (815) 753-9974 or e-mail at sb.niu@ieee.org*

**The Rock River Valley Section gratefully acknowledges the following companies and colleges for supporting Section Officers:**

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**RRVS Calendar**

- October RRVS Section Meeting** ..... **October 30**  
Modeling and Simulation for Signal Integrity & EMI, Rock Valley College, Rockford, IL
- November RRVS Joint Section-Student Branch Meeting** ..... **November 20**  
TBD, Engineering Building, DeKalb, IL
- January RRVS Section Meeting** ..... **January 29**  
Design for Reliability of Energy Processing Systems, Rock Valley College, Rockford, IL
- February RRVS Section Meeting** ..... **ENGINEERS WEEK**..... **February 19**  
TBD, Rock Valley College, Rockford, IL

**Rock River Valley Section Chapters**




**Industry Applications Society Chapter**

*Established 1992*




**Joint Computer/Control Systems Society Chapter**

*Established 1995*



**Power Electronics Society Chapter**

*Established 1996*



**Electromagnetic Compatibility Society Chapter**

*Established 2007*

Time-Sensitive Material

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