



ELECTRON

Institute of Electrical & Electronics Engineers, Inc.

January 1999
Volume 16
No. 1

THE IEEE CHARLOTTE SECTION NEWSLETTER

POWER ENGINEERING SOCIETY MEETING

DUKE ENERGY'S ALBEMARLE SUBSTATION AUTOMATION UPGRADE

Duke's Electric Transmission department is faced with an aging infrastructure in its transmission substations. Equipment such as the protective relaying and system controls are approaching end of life and are in need of replacement. The upgrade at the Albemarle Substation is a pilot effort to test the new automation equipment available in the market. Unlike past installations where protection, control, alarming, sequence of events, etc., were all dedicated stand alone pieces of equipment with limited interconnection, Albemarle will include the latest in protective relaying which will be system integrated into a master protection, control and monitoring system. A station computer will assume the role of local control, alarming, sequence of events, and a lot more.

If this sounds interesting then come on out for the full review of this project!

Speaker: CHRIS CLIPPINGER, PE

Chris is a protective relay engineer in Duke Energy Electric Transmission. Chris is Project Manager of the Albemarle Substation upgrade.

Date & Time: Monday, January 18, 1999

5:30 p.m. - "Pizza" Snack Meal, \$2.00

RESERVATIONS required by noon, January 18th.

6 to 7 p.m. - PES Officer Elections & Presentation

Location: O. J. Miller Auditorium, Duke Energy Center
526 S. Church St., Charlotte, NC

PARK in the lot behind the Energy Center off Mint Street. Advise security at the parking lot gate that you are attending the IEEE meeting.

Contacts: For Reservations or more information:

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Lee Underwood	426-3016	lsunderw@duke-energy.com
Fred Thornton	382-3094	fwthornt@duke-energy.com

**IEEE CHARLOTTE SECTION
1999 MEETING CALENDAR**

**National Engineer's Week
Joint Engineering Banquet**
February 25, Thursday

Computer Society
March 15, Monday

Charlotte Section
April 19, Monday

Communications Society
May 18, Tuesday

**Power Engineering Society
Annual Field Trip**
June 17, Thursday

Annual Section Picnic
August 19, Thursday

Computer Society
September 20, Monday

Communications Society
October 19, Tuesday

Annual Section Banquet
November 18, Thursday

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Home Page: www.ewh.ieee.org/r3/charlotte

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IEEE CHARLOTTE SECTION 1999 EXECUTIVE COMMITTEE CALENDAR

January 13, Wednesday
February 17, Wednesday
March 10, Wednesday
April 14, Wednesday
May 12, Wednesday
June 9, Wednesday
August 11, Wednesday
September 15, Wednesday
October 13, Wednesday
November 10, Wednesday
Annual Planning Meeting
December 1, Wednesday

**Executive Committee meetings
are held at:
Duke Energy Corp., Energy Center
Phase II, Room 9-105A, 6:00 p.m.**



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ELECTRON INFORMATION & COMMENTS

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THE IEEE CHARLOTTE SECTION NEWSLETTER

JOINT ENGINEERING SOCIETY MEETING

A TRIBUTE TO ROBERT SNYDER, DEAN OF THE WILLIAM STATES LEE COLLEGE OF ENGINEERING AT UNCC AND AN ANNUAL BANQUET TO CELEBRATE ENGINEERS WEEK

Dean Snyder will be retiring this year after 20 years of service at the university. Professors of the university will be presenting a history of UNCC and the student "Inter-Society Council" will be presenting a spoof of their college life under Dean Snyder's leadership. The Joint Engineers Society will present a gift to Dean Snyder to honor his contributions to the engineering community.

Date/Time: Thursday, February 25, 1999

6:00 PM - Student Displays

6:30 PM - Annual Banquet and Program

Tickets: Ticket will be \$25.00

The Charlotte Section is offering a 50% discount to the first 12 members (including 1 guest)

Reservations required by noon Friday, February 19, 1999.

Location: UNC Charlotte Campus
Barnhardt Student Activities Center
Michael Craver Road

Parking: Free Parking in the West Deck on UNCC campus (adjacent to the Barnhardt Student Activities Center). Please park in the deck only.

Contacts: For Reservations or more information:
Natalie Sayles 875-4895 nal2856@duke-energy.com

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Computer Society
March 15, Monday

Charlotte Section
April 19, Monday

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May 18, Tuesday

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December 1, Wednesday

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Duke Energy, Energy Center Phase II,
Room 9-105A, 6:00 p.m.



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THE IEEE CHARLOTTE SECTION NEWSLETTER

March 1999
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Computer Society Meeting

QUALITY PROCESS IN MICROSOFT

Speaker: Harry Bynam
Quality Assurance Lead/Desktop Operating Systems

Harry Bynam from the Microsoft center here in Charlotte will speak about the call center here in Charlotte in general and on Microsoft's focus on Call Coaching, Internal Improvement Processes and having fun in a challenging environment.

Harry is a graduate of Montreat College, is married, and is based in Dallas (NC that is). Harry has been with Microsoft for 5 years.

Date/Time: Monday, March 15, 1999
6:00 PM – Snack Meal
Snack Meal \$2.00, \$1.00 for Students
6:30 PM - Program

Reservations required by noon Monday, March 15, 1999.

Location: UNCC Cameron Applied Research Center
Cameron Auditorium Room 101
Michael Craver Road

Parking: Limited visitor parking is available at the Cameron Center with additional parking available in East Deck 1 on Mary Alexander Rd. and Cone Deck 1. Tokens for the visitors parking deck will be available after the meeting.

Contacts: For Reservations or more information:
Tony Kombal 594-4870 ajkombal@us.ibm.com
Natalie Sayles 875-4895 nal2856@duke-energy.com

PEs
This & the UNCC
Meeting are Each
Worth 1 PDH.

IEEE Charlotte Section 1999 Meeting Calendar

Charlotte Section
April 19, Monday
Communications Society
May 18, Tuesday
Power Engineering Society
Annual Field Trip
June 17, Thursday
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UNCC STUDENT BRANCH MEETING

CONTROL SYSTEMS OF THE HUBBLE TELESCOPE

The earth-orbiting Hubble Telescope is designed to work in ultraviolet. The telescope is designed for long orbital lifetime with occasional Shuttle-serviced maintenance and instrument changes both in-orbit and on the ground. The operation of such a complex instrument takes extraordinary system. Dr. Yogendra Kakad will be discussing his work on these control systems.

Speaker: Dr. Yogendra Kakad
 Professor Electrical and Engineering
 UNCC Electrical and Computer Engineering Dept.

Dr. Kakad has been a professor at UNC Charlotte since August of 1976. He received his Masters and Ph.D. at the University of Florida. Dr. Kakad has professional affiliations with IEEE, ASME, and AIAA. Dr. Kakad's research is in the area of multivariable control applications for robotics, aircraft, manufacturing and rapid-prototyping of digital design for controls, and communications and digital signal processing. He also has done research for NASA in the field of dynamic and control of flexible spacecraft during slewing maneuvers and dynamics and control of flexible multi-body space systems. Dr. Kakad can be reached at kakad@uncc.edu.

Time/Date: Tuesday March 30, 1999, 6:30 PM
 Free Refreshments Served

Location: UNC Charlotte, Smith Building Room 351
 Park in the visitor parking deck next to the Cone Center.

Contacts: La'Tisha Leach 568-6610 ldleach@uncc.edu
 Paul Elliott 510-5343 pcelliot@uncc.edu
 Jeffery Ugalde 732-3140 jgugalde@uncc.edu

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 December 1, Wednesday

Executive Committee meetings
 are held at: Duke Energy
 Energy Center Phase II
 Room 9-105A
 6:00 p.m.



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THE IEEE CHARLOTTE SECTION NEWSLETTER

June 1999

Power Engineering Society Meeting

CHARLOTTE TROLLEY TOUR

There has been a great deal of discussion in the news lately about transportation in Charlotte, and light rail has been at the top of the list. However, light rail is not new to Charlotte, since Charlotte had an extensive streetcar system at the beginning of the century. Charlotte Trolley is working to return streetcars to Charlotte.

In this tour of the Charlotte Trolley facility, we will learn about history of the streetcar in the United States and in Charlotte, and discuss the five cars currently in the fleet, from #1, a 1914 semi-convertible, to #13, a state of the art PCC car built in 1949. The focus of the tour will be to discuss the differences in technical sophistication of the cars, describe the various controls and drive systems used and gain a better understanding of how electric streetcar technology evolved. We will also discuss the on-going restoration of the cars, which is performed mostly by volunteers, and the plans for daily operation beginning in 2001.

We will finish the tour by discussing the operation of #85, which was built and operated by Southern Public Utilities in Charlotte. We will conclude with a ride Uptown on #85, and then return to South End for dinner at South End Brewery.

Date/Time: Thursday, June 17, 1999

5:00 PM – Meet at the Car Barn

\$5.00 Charge for dinner at South End Brewery including non-alcoholic beverages

Tour is limited to 20 people.

☛ **Reservations** required by noon on June 17, 1999.

Location: Charlotte Trolley Car Barn, 2104 South Blvd., Charlotte, at Atherton Mill

Parking: The Car barn is located at Atherton Mill, behind South End Brewery. From Uptown, take South Blvd to Tremont Ave. (1st light after East Blvd.). Proceed on South Blvd. approximately 1/8 mile to Atherton Mill on the right. The car barn is at the rear of the parking lot. General Parking for Atherton Mill is provided. If parking lot is full, you may park at the rear of the barn. This parking area can be reached through the alley on the left of South End Brewery. Enter the barn through the door to the left of the roll-up door.

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August 19, Thursday

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IEEE COMPLETES SLOAN PROJECT, PRODUCES MULTIMEDIA CAREER RESOURCES

Many students are so immersed with technical subject matter that they often overlook what is needed for success in the "real world." To provide students with the necessary information to plan for their careers, the IEEE has produced the following multimedia resources that take an in-depth look at careers for electrical engineers and computer scientists:

- The IEEE Student Career Web site at www.ieee.org/organizations/eab/sloancareers/sloancareers.htm
- The CD-ROM, *Careers for Electrical Engineers and Computer Scientists*
- Videos, *What's Out There* and *Getting Ready*

"Although aimed at the college student, these materials are also helpful to high school students who are contemplating technical careers," said Peter Wiesner, director of continuing education for IEEE Educational Activities. "We want to encourage students to think about careers early, and provide them with the appropriate resources to do so."

The IEEE was one of eleven professional associations to receive funding from The Alfred P. Sloan Foundation to create products that explore the various career opportunities open to scientists, engineers and mathematicians. To obtain information about the other participating associations, visit the Sloan Web site at www.careercornerstone.org.

The CD-ROM and videos are available for purchase from the IEEE Customer Service Department, 445 Hoes Lane, PO Box 1331, Piscataway, NJ, 08855-1331; E-mail: customer-service@ieee.org; Phone - 1.732.981.0060

To order the CD-ROM--\$29.95 list and \$19.95 for IEEE members--use code EC100-QVE; to order the *What's Out There* video--\$24.95 list and \$19.95 for IEEE members--use code EV5526-QVE; to order the *Getting Ready* video--\$24.95 list and 19.95 for IEEE members--use code EV5522-QVE. For more information on any of these products, visit IEEE Web address www.ieee.org/organizations/eab/careeresource.htm.

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THE IEEE CHARLOTTE SECTION NEWSLETTER

September
1999

IEEE Charlotte Section

IEEE FAMILY FUN DAY PICNIC

Please join the Charlotte Section for a "Family Fun Day". The picnic will be held at Nevin's Community Park. Nevin's is one of Charlotte's newest parks offering walking trails, soccer and softball fields, playgrounds, horseshoe pits and shuffleboard. Family Fun Day activities will include:

- Water balloon toss
- Volleyball
- Horseshoes
- Door Prizes
- Three legged races
- Caricatures
- Beach Music (you may bring your beach music CD's)

A playground is located on the premises.

The picnic will be catered by **Hillbilly BBQ** (BBQ pork, chicken/with all the fixin's)

DATE/TIME: Thursday, September 16, 1999, 6:00 to 8:00 PM

6:15 PM - Dinner will be served

\$5.00 members and guest, \$7.00 non-members

\$3.50 children 4-12, Children 3 and under free

PURCHASE TICKETS by Thursday, September 9, 1999 from:

Bill Whitlock	(McGuire Nuclear Station)	875-4869
Natalie Sayles	(McGuire Nuclear Station)	875-4895
Steve Graham	(Duke Energy/GO)	382-3731
John Tannery	(Duke Energy/GO)	382-9867
Jim Herrington	(Catawba Nuclear Station)	831-4096

LOCATION: Nevin Community Park - Shelter #1, 6000 Statesville Rd.

DIRECTIONS / PARKING:

From I-85: Take Statesville Rd exit, go approximately 1 mile up Statesville Rd (away from city). Park is located on right side (first right after Ranson Middle School).

From I-77: Take Sunset Blvd east exit, take a right on Statesville Road (HWY 21). Park is located less than 1/2 mile on left.

Plenty of parking at shelter #1

**IEEE Charlotte Section
1999 Meeting Calendar**

Communications Society
October 19, Tuesday
Annual Section Banquet
November 18, Thursday

IEEE Charlotte Section Computer Society

BAR CODE PRINTING: WHY AND HOW?

SPEAKER: CLAY SHY, Product Manager, Printer Products Group

Clay Shy has extensive experience in the design and application of thermal printing systems. Clay joined Datasouth Computer Corp. in 1993 as a Software Engineer where he developed embedded firmware for a variety of printer systems offered by Datasouth. Currently he is a Product Manager for the Printer Products Group where he defines new product plans in the impact and thermal lines of printers.

Clay Shy has bachelor degrees in Electrical and Computer Engineering from the University of Michigan, Ann Arbor and a Master's degree in Computer Engineering from North Carolina State University.

DATE/TIME: Monday, September 20, 1999

6:00 - Snack Meal (\$2, Students \$1), 6:30 - Meeting Begins

Snack Meal - 12 noon on Monday, September 20, 1999

Reservations must be made for Snack Meal

**LOCATION: Duke Energy Center, 526 South Church Street
O. J. Miller Auditorium**

PARKING/DIRECTIONS: Park in the Duke Energy employee lot off Mint Street. Push the security call button at the gate and advise them you are attending the IEEE meeting. Enter building at back door off Mint Street. Sign in with the security station at back door. Follow hall to the front of the building and you will find a set of elevators. Come to the first floor. The auditorium will be across the lobby area.

RESERVATIONS: Natalie Sayles 875-4895 nal2856@duke-energy.com

IEEE CHARLOTTE SECTION AWARDS

Do you know any IEEE peers who have made extraordinary contributions to their electrical / electronics engineering profession? The Charlotte Section recognizes individual excellence of its members through three annual awards:

- ◆ **OUTSTANDING ENGINEER** ◆
- ◆ **OUTSTANDING SERVICE** ◆
- ◆ **OUTSTANDING ENGINEERING EDUCATOR** ◆

Nominate an IEEE Charlotte Section member for an award by contacting Steve Graham (382-3731), Randy Groves (382-9176) or Cathy Hope (382-8560) of the Awards & Nominations Committee.

NOMINATION DEADLINE: OCTOBER 31, 1999

Peer recognition is paramount to the continued vitality of our profession! Please consider a nomination this year. Awards are presented at the Charlotte Section Annual Banquet..

CHARLOTTE SECTION LIFE MEMBER CHAPTER

The IEEE Life Member Committee would like the Charlotte Section to form a Life Member Chapter. All Charlotte Section **LIFE MEMBERS** interested in forming a Life Member Chapter **CALL Carol Mullis** at 537-0538.

IEEE CHARLOTTE SECTION OFFICERS & DIRECTORS

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John Tannery	Duke Power	704/382-9867 jtannery@duke-energy.org
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Carol Mullis	Duke Power-Retired	704/537-0538
Roscoe White	Duke Power-Retired	704/537-8449
Mehdi Miri	UNCC	704/547-4140 miri@uncc.edu

IEEE CHARLOTTE SECTION 1999 EXECUTIVE COMMITTEE CALENDAR

September 15, Wednesday

October 13, Wednesday

November 10, Wednesday

Annual Planning Meeting

December 1, Wednesday

Executive Committee meetings are held at:
Duke Energy Center Phase II
Room 9-105A, 6:00 p.m.



ELECTRON INFORMATION & COMMENTS

Send information you would like to have included in the newsletter to:

Paul Colaianni, ELECTRON Editor
Duke Energy Corp.-EC12R
P.O. Box 1006
Charlotte NC 28201-1006
p.colaianni@ieee.org, 704/382-5632

ADDRESS CHANGES — 1-800-678-4333

Dial the IEEE Service Center (8 a.m.-4 p.m.) for address changes, IEEE publication orders, membership applications, standards seminars information, and other student and member services.

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Institute of Electrical & Electronics Engineers, Inc.

THE IEEE CHARLOTTE SECTION NEWSLETTER

November
1999

THE COMMUNICATIONS SOCIETY PRESENTS SPREAD SPECTRUM WIRELESS & INTERNET ACCESS



TWO OF THE FASTEST GROWING SEGMENTS OF THE TELECOMMUNICATIONS INDUSTRY

Our guest speaker is Richard Dillon of BreezeCOM, a worldwide leader in wireless communications development and manufacturing. The presentation will cover the fundamentals of spread spectrum and center on Frequency Hopping and Direct Sequence issues which will include a discussion of the advantages and disadvantages of each, performance and network architectures, design and management. The speaker will also discuss high-speed access to the Internet using spread spectrum.

Richard Dillon is a Senior Systems and Applications Engineer for BreezeCOM and has over 25 years of experience in the computer and networking industry. During the last 4 years, he has been involved in the design and implementation of high-speed wireless networks.

Date/Time: Monday, November 15, 1999

6:00 PM – Dinner at the Comedy Zone
(Dinner prices \$5 - \$15, Cash bar available)
6:45 PM – 8:00 PM Presentation

Location: Comedy Zone
5317-A East Independence
(Behind TGI Fridays)

IEEE CHARLOTTE SECTION
1999 MEETING CALENDAR
Annual Section Banquet
Thursday, November 18,
1999

See back of page for details

Reservations are not required. Seating is first come first served.

Contacts: Natalie Sayles 875-4895 <mailto:nal2856@duke-energy.com>
Robert Beazley e-mail: consulting@ocns.com

IEEE CHARLOTTE SECTION EXECUTIVE COMMITTEE Home Page: www.ewh.ieee.org/r3/charlotte

SECTION OFFICERS & DIRECTORS

Chair	John Tannery	Duke Power	704/382-9867	jtannery@duke-energy.org
Vice Chair	Natalie Sayles	Duke Power	704/875-4895	nalittle@duke-energy.com
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	Carol Mullis	Duke Power-Retired	704/537-0538	
	Roscoe White	Duke Power-Retired	704/5378449	
	Mehdi Miri	UNCC	704/547-4140	miri@uncc.edu

IEEE CHARLOTTE SECTION ANNUAL BANQUET

"CHINA, THE NEXT 50 YEARS"

Our distinguished speaker for this year's Annual Banquet is Dr. Billy Wireman, President of Queens College. Dr. Wireman's talk will focus on the events in Shanghai and Beijing surrounding the 50th anniversary of the Peoples Republic of China. He will expound on the major challenges facing China now and in the next 50 years.

Dr. Wireman has extensive international interests and experience. He has served as an educational consultant in India, Africa, South America and Indonesia and has repeatedly visited South Korea, China, Taiwan, Hong Kong and the Philippines to meet with educators and government officials. He is Chairman of the Charlotte World Affairs Council and is on the International Commission of the American Council on Education. Dr. Wireman has published over 250 articles on education, politics, religion and international topics focusing on Europe and Asia. He and two other Queens College Professors have written three books.

Dr. Wireman has spoke to IEEE previously on "Hong Kong's Return to China". He is in demand as a speaker to various groups and organizations on leadership, motivation, diversity and internationalizing education.

Contact the following for tickets:

David Pullen – 947-2511
Bill Whitlock – 875-4869
Tracy Blackmon – 382-5692
Jim Herrington – 831-4096

Deadline for reservation is noon on Monday, November 15, 1999

Date/Time: Thursday, November 18, 1999

6:15 - Cocktails

6:30 - Dinner

Location: Hereford Barn Steak House
4320 N I-85 at Graham St.

Cost: \$14.00

Menu: Choose from one of the following: 9 oz filet mignon, grilled chicken or flounder. The entrées are complete with a cheese and relish tray, large salad, homemade onion rings, a choice of potato, a beverage and dessert. Cash bar available.

Please join us at the Annual Banquet. The Charlotte Section will also hold an election for officers and present awards.



ELECTRON
Institute of Electrical & Electronics Engineers, Inc.

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