

IEEE NEWSLETTER

KITCHENER - WATERLOO SECTION

SEPTEMBER 1990

THE K-W SECTION PRESENTS TWO INTERESTING EVENTS TO START THE FALL SEASON

- Wed., Sept. 26: **PLANT TOUR OF NORTHERN DIGITAL IN WATERLOO.** To visit this hi-tech firm see page 3 for details.
- Wed., Oct. 3: **Dr. Arokia Nathan** of the University of Waterloo will discuss **NANOTESLA MAGNETIC FIELD RESOLUTION USING SILICON.** More information on this lecture is available on page 3.

NON-MEMBERS ARE ALWAYS WELCOME AT OUR MEETINGS

Other articles in this issue:

- Report of the **Annual General Meeting** and the **New Executive of the K-W Section** for 1990-91, page 2.
- on **Recycling your IEEE mail** by Tom East, page 4-5.
- The K-W section has recently revised its **Bylaws**; see page 2.

SECTION OFFICERS

Chairman: Oleg Feldgajer, (519)884-1710,ext.360
 Vice Chair: Deborah Stacey, (519)824-4120,ext.2634
 Secretary: Bert Knox, (519)886-6374
 Treasurer: John Mowbray, (519)884-1710,ext.371

CHAPTER CHAIRS

Acoustics, Speech and Signal Processing:
 George Freeman, (519)885-1211,ext.2876
 Computers: Wayne Loucks
 (519)885-1211,ext.3337
 Antennas and Prop., Microwave Theory and Tech.:
 Len Chow, (519)885-1211,ext.2822
 Circuits and Systems, Electron Devices:
 C.R. Selvakumar, (519)885-1211,ext.3978

ADDRESS: K-W Section IEEE
 c/o Elect. & Comp. Eng. DC-2597
 University of Waterloo
 Waterloo, Ont. N2L 3G1

COMMITTEE CHAIRS

Education: Ed Spike, (519)885-1211,ext.3716
 Program Chairman: Ted Swart, (519)824-4120,ext.2250
 Program Committee: Bob Dietz, (519)656-2720
 Bert Knox, (519)886-6374
 Harish Upreti,
 Membership and Transfers: Keith Campbell, (519)824-1710,ext.281
 Publications (Newsletter): Tom East, (519)746-7809
 Awards: Rosalind Hood-Morris, (519)742-1751
 Nominations: Bob MacPhie, (519)885-1211,ext.2842

STUDENT ACTIVITIES CHAIRS

Conestoga College:
 -Peter Forshaw, (519)748-5220,ext.287
 University of Waterloo:
 -Stream A: Li Deng, (519)885-1211,ext.6041
 -Stream B: George Freeman, (519)8851211,ext.2876

The Kitchener-Waterloo Section of the Institute of Electrical and Electronics Engineers serves all members whose mailing address is in Bruce, Grey, Perth, Waterloo or Wellington Counties.

ANNUAL GENERAL MEETING MAY 1990

At the Kitchener-Waterloo section AGM held on Wednesday May 30, 1990, Keith Campbell, chair of the Nominating Committee presented the following slate: as there were no nominations from the members, the slate was returned unopposed.

Officers:

Chairman: Oleg Feldgajer, NCR

Vice-chair: Deborah Stacey, UG

Secretary: * Bert Knox, retired

Treasurer: John Mowbray, NCR

Committee Chairs:

Education Committee

Chair: Ed Spike, UW

Program Chair: Edward Swart, UG

Publicity Chair: Harish Upreti

Membership and Transfers

Chair: Keith Campbell, NCR

Publications Chair:

Tom East, Engineering Services

Awards Chair: Rosalind Hood-Morris

Nominations Chair: Bob MacPhie, UW

Chapter Chairs:

Acoustics, Speech and

Signal Processing:

George Freeman

Antennas and Propagation,

Microwave Theory and Techniques:

Len Chow

Circuits and Systems,

Electron Devices:

C.R. Selvakumar.

Computers: Wayne Loucks

Student Activities Chairs:

Conestoga College: Peter Forshaw

University of Waterloo

Stream A: Li Deng

Stream B: George Freeman

* Appointed by Nominations Committee since the AGM.

THE BYLAWS

The bylaws of the Kitchener-Waterloo section have recently been revised to bring them more closely into line with the Bylaws of the IEEE, to reflect a change in territory and generally to tidy them up.

If you would like a copy, get in touch with the Secretary, Bert Knox. (see front page)

MAN BITES DOG IS NEWS

by Tom East

While my wife was working at her new Sears Kenmore model 385 sewing machine, she switched on a Radio Shack "Realistic" portable radio to listen to the CBC News (AM 740). She was not surprised to find that the sewing machine interfered with the radio.

However, she was surprised to find that the sewing machine made an alarming noise. As soon as she switched the radio off, everything was back to normal.

As they used to say in journalism school, "Dog Bites Man is not news - Man Bites Dog is news".

Plant Tour: Northern Digital

Time: Wednesday September 26, 1990 at 7:00 p.m.
Place: Northern Digital Inc.
403 Albert Street
Waterloo
Contact: If you wish to come on this tour, phone Ted Swart at
824-4120 ext. 2250.
Numbers are limited so phone early.

Northern Digital Inc. is a privately owned Canadian company incorporated in 1981 by UW graduates to design and manufacture personal computers and custom scientific instrumentation. Among their products are:

- WATSMART, non-contact 3-D motion digitizing and analysis system for gait analysis, wind tunnel model attitude and location, hand-eye coordination studies and others.
 - OPTOTRAK, a non-contact, high speed, high accuracy system which provides 3-D data in real time at a rate of 2500 points per second, with accuracies of 0.1 mm in X and Y and 0.15 mm in Z direction at a distance of 2 m.
- These systems use infrared LED markers, novel camera systems, a controller and a PC.

Nanotesla Magnetic Field Resolution Using Silicon

by Prof. A. Nathan

Time: Wednesday October 3, 1990 at 7:30 p.m.
Place: Room 1302, Davis Centre, University of Waterloo.
Speaker: Dr. A. Nathan, Dept. of Electrical and Computer Engineering,
University of Waterloo

Silicon Microsensors are currently exploited in a variety of sensing applications. For a large variety of measurands, microsensors can be designed and fabricated using IC technologies such as bipolar or CMOS with or without additional steps.

Magnetic field sensors can be readily manufactured using standard VLSI technology. Applications include: storage and retrieval of information in magnetic media, magnetic pattern recognition, contactless switching, detection of position, displacement and current.

The bipolar magnetotransistor appears to offer best value, but intrinsic noise ultimately limits the field resolution. The presentation will focus on ways to reduce the noise. With a careful choice of device geometry and operating configuration and by exploiting the positive correlation between output noise voltages, noise can be reduced by four orders of magnitude.

The Speaker: Prof. Arokia Nathan holds a B.S. degree from Leeds Polytechnic, UK and a Ph.D. from the University of Alberta. He recently joined the Department of Electrical and Computer Engineering at the University of Waterloo and his research is focused on silicon devices and integrated circuits (SIDIC).

RECYCLING YOUR IEEE MAIL

by Tom East

We all want to do our bit to decrease the input to landfill sites and help the environment. Here is what we can do with the month's IEEE mail and other items. Newsprint (including The Institute) goes in your Blue Box. Everything else has to go to a recycling depot. The one that I am most familiar with (and is accessible to the whole Region via the Conestoga Parkway) is Tri-Tech Recycling. Tri-Tech accepts several kinds of paper:

Computer printouts: They pay you 5¢/lb. for this.

White bond paper: They pay 4¢/lb. Includes anything that comes off a "plain-paper copier", also regular typewriter paper, and has nothing stuck on to it (staples are all right). Regular envelopes without labels stuck on are also in this category. Tri-Tech pays for all these. No post-it notes, no carbon paper.

Coloured bond paper: They pay 3¢/lb. Same as above but coloured. If white and coloured are mixed, it counts as coloured.

"Bad" paper (my name): They charge 10¢/lb. to take it off your hands. Window envelopes, brown envelopes, anything with a label stuck on, glossy paper, anything with a glued binding, blueprints.

Corrugated cardboard: No charge for small amounts. Also includes brown bags (Kraft paper) such as Liquor Store bags.

Box Board: (Cereal boxes, etc.) No charge for small amounts.

Plastic bags: Not accepted.

So what can you do with the IEEE mail?

This newsletter: White bond.
Envelope - pull off label, then it is white bond. Otherwise it is bad paper.

Canadian Review: Bad paper.

Spectrum: The Institute - newsprint - blue box.
Spectrum magazine - bad paper.
Address sheet - pull off label, then it is white bond.
Plastic bag - garbage.

Computer Magazine: Bad paper.

Antennas and Propagation Transactions:
Bad paper.
Magazine - remove label, then it is white bond.

Aerospace and Electronic Systems Transactions:
Remove glued binding, then it is white bond - otherwise it is bad paper
Newsletter - remove glossy cover (which is bad paper) then it is white bond.

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Other material:

Glossy magazines: Such as Microwave Journal - bad paper.

Window envelopes: Bad paper.

Other white envelopes: If stick-on labels are removed, they are bond paper, otherwise they count as bad paper.

Income tax guide: Bad paper.

Junk Mail, Flyers: The people who recycle newspapers can stand a small proportion of glossy paper: they will accept the inserts that came inside your newspaper, but don't add others that appeared in your mailbox.

Generally speaking, all glossy paper is "bad", and Tri-Tech charges 10¢/lb. to accept it.

However, if you have a large quantity, they can apply a kind of "litmus test" to find what kind of paper is underneath and respond accordingly.

All prices are based on you handing things over at their loading dock. They will pick up large loads for a fee.

The rules change from time to time. We will keep you posted.

How to get there:

To get to Tri-Tech, take King Street North and turn left on Northfield Drive. (When the overpass is finished, you will be able to take Highway 86 North and turn right on Northfield Drive). Go south on Conestoga Road for 0.8 km and turn right on to Dotzert Court. Take the first entrance on the right, then turn left and look out for the red RECYCLING sign. While you are there, pick up their newsletter.

For more information, phone them at 747-2226.

FOR LOGIC DESIGNERS ONLY

Sign seen on a T-shirt at UW:

$$2B + \overline{2B}$$

Readers who are not logic designers will have to wait for our next issue.

DON'T TAKE YOUR ORGANS TO HEAVEN

In case you had not seen the movie "The Last Emperor" and were wondering what the last sentence of the item under the heading "Notice seen in the KW Hospital Cafeteria" in our last issue was all about, here is an explanation:

In the movie, as a condition of employment, some male employees in the Emperor's Palace had had a pair of small organs surgically removed. The employee was allowed to keep them in a box, so that when he died, he could take them with him to heaven, where, presumably, in an auto-transplant operation, he would be restored to full manhood.