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ANNOUNCEMENT

Vendors are invited to display their products at the Dinner Meetings. 2 tables are available. Contact Program Committee Jim Dinkel or Andy Tucker. Cost \$50 per table.

Upcoming Executive Meetings

- June 26, 2000
- August 28, 2000

NOW AVAILABLE!

The 2000 Sarnia ISA Directory is now available. Call... (519) 332-2300 for details.



DINNER MEETING NOTICE



MONDAY

May 29, 2000

SARNIA GOLF & CURLING CLUB
500 Errol Road West, Sarnia • Phone: (519) 336-2201

Cocktails 6:00 p.m. Dinner 7:00 p.m.

All Guests are Welcome!



Guest Speakers...

MARGARET ROSS-MARSHALL, Registered Massage Therapist

MARGARET STEWART, Ontario Certified Fitness Instructor 1992

LYDIA PAULINO-RACINE, Nutritional Advisor

TOPIC... "Shape Up for the Summer!" Through Target Training, Custom Nutrition and Massage Therapy.

M ▸ E ▸ N ▸ U

Greek Salad

Surf and Turf • Sugar Snap Peas • Baked Potato

Hedgehog Truffle Torte

* For special dietary needs contact Hilda White at the Sarnia Golf and Curling Club 48 hours prior to meeting date.

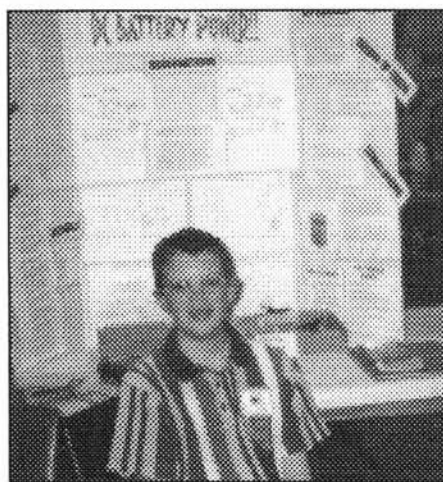
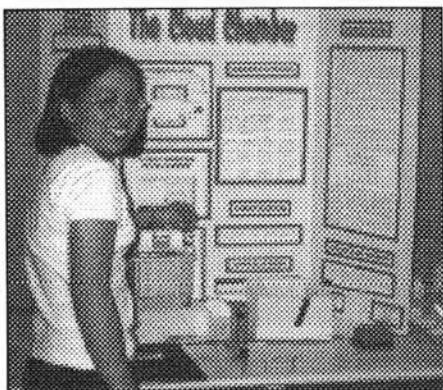
NOTE: Kindly book before deadline indication.

Please phone in or E-Mail your reservation by Thursday, May 25th, 2000 to Sandi Cooke - Tidball Phone: (519) 481-3211 • E-Mail: cookets@novachem.com

MEMBERS \$10 ▸ GUESTS \$15

NOTE: ALL Members and guest are requested to reserve in advance. Please oblige... we need your support to plan your evening!

ISA Science Fair



The Section participated in the Lambton County Science Fair. There were winners in each category this year, Junior's, Intermediate's and Senior's. As always the topics are interesting and awesome. The winners are: Junior category, Michael De Jourdan "DC Battery Power"; Intermediate category, Melissa Ho "The Cloud Chamber"; Senior category, Dorian Latawiec "Hydrogen Fuel Cell", Lauri Doucete and Lynette Lau "Power Generators".



The Sarnia Section has a domain on the internet. Next time you're on the net give us a look at:
www.isasarnia.com

ISA President's Address

Welcome to the final issue of the Annunciator for this ISA year.

This is my final address as your President. I want to take this time to thank all of my Executives for all of their work; to all of my committees for the timely completion of their projects and to all of you the members for your participation and attendance at all of our functions. I said before that the only way that we can survive is by delegation, commitment, dedication and participation. I believe that we achieved a high percentage of these requirements that is the key to our success and I applaud your efforts.

I have had an item from ISA's President Perry Grady installed in this issue of the Annunciator regarding the Society Task Force; review and comment (if you wish) otherwise its for your information.

Looking forward to seeing you at the final dinner meeting and if not have a great summer and thanks again.

Mike Murray
President



ISA 6th Annual Golf Tournament

Date: Friday, June 9, 2000
Place: St. Clair Parkway
Cost: \$60.00
Tee Off: 7:30 a.m.



Your Executive wishes to provide a fun day for all members and potential members with our Sixth Annual Golf Tournament. It will be an open invitational and our objective is to have everyone enjoy themselves, whether they happen to be serious or simply a once a year golfer. The tournament will include green fees, dinner and prizes. Start lining up your team partners. Mark down the date and let's make this year's tournament a great success.

ISA Great Web Site References

This information has been taken from the Section Leader Brief. This Brief will be delivered to you via e-mail each month, and it can also be found on ISA OnLine. <http://www.isa.org/fmo/sections/indexspb/>

Please review this month's issue carefully for articles which you'll hopefully find useful in managing your Section.

Section pages on ISA website

<http://www.isa.org/fmo/sections/pdf/sectemplateguide.pdf>. Contact your Staff administrator for your Section's user id and password.

Information for Canadian Section Treasurers

Please contact Bill Palmer. wpalmer@isa.org.

Membership E-mail List

Anyone with an interest in this topic may subscribe to the list by sending e-mail to: membership@isa-online.org with the word "subscribe" in the subject field. Or log into ISA OnLine at <http://www.isa.org/>.

Society Structure Task Force

If you have not been able to attend your District workshop, you can review the presentation online at: <http://www.isa.org/isaolp/sstf/sstfintro.html>

Section in the Spotlight

With over 1,700 members, the Houston Section is the largest one in ISA. To learn more about the Section, visit: <http://www.isa.org/~houst/>.

Web-Based Seminars Available for Section Programming

For more details, the 2000 schedule, or to register, visit <http://www.isa.org/training/websem/>



The Evolution of Level Measurement: The Next Step in Radar

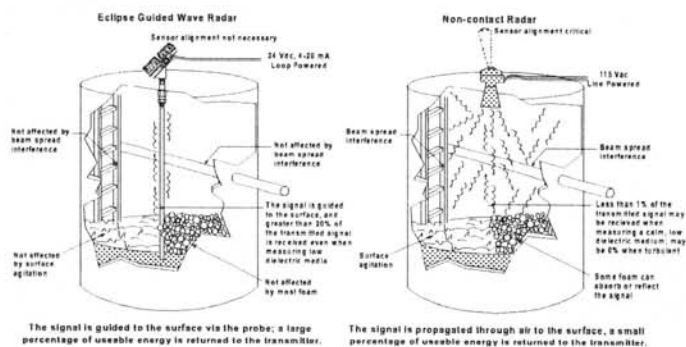
Written for the Sarnia ISA by Kevin Martyn Magnetrol Canada
(email kmartyn@magnetrol.com)

To many, radar is the "be all and end all" level measurement technology, the answer to all level measurement applications – or is it?

As this ISA publication is directed to a technical audience, let's put the marketing superlatives aside, and simply do a technical comparison of a significant new development with some of the current approaches.

First we need to understand that the term radar (**RA**dio **D**etection **A**nd **R**anging) is very general; not all radar level transmitters are the same. Generally the term is applied to microwave based level transmitters, but there are actually several, very different approaches to radar level measurement. Some are, Pulsed Time of Flight (PTOF), Frequency Modulated Continuous Wave (FMCW), and now Guided Wave Radar (GWR). The differences between all these types is beyond the scope of this article, but let's break it into two basic categories. Through air, or non contacting radar; and Guided Wave or contacting radar (sometimes referred to as TDR or Time Domain Reflectometry, as that is one aspect of it; implemented using Micropower Impulse Radar). Both approaches have their pros and cons, and can suit different applications. We will confine our overview to devices typically costing under \$3000 as that is a common target for devices intended for general application.

The diagram below indicates some of the typical differences between these two basic types.



As you can see, the guided wave approach, allows you to put the energy where you want, and need it. It is concentrated around the outside of the wave guide (basically just a metal rod or cable, that can be cut, bent, angled etc.), it is greater than 20 times more efficient than through air radar, which uses a much less efficient transmission means, losing most of the signal in the vapour space and to beam spread. The diagram perhaps unfairly compares a line powered non contact radar, with a loop powered device. However this is an example where a loop powered guided wave version, can out perform the through air version, because of it's efficiency. There are loop powered non contact radar devices, but they must store and build up energy, and duty cycle the pulse transmission and signal processing. With the averaging and signal processing involved, the return signal from a turbulent or fast moving level can easily move out of the window being analyzed, and be lost. Therefore they are generally more suitable for calm slow moving liquid surfaces. GWR on the other hand, taking over 200,000 readings a second gives an almost instantaneous response. We therefore feel GWR has many advantages for process control applications, making it's application much more universal. In

addition to overall level, GWR has the capability to measure a liquid / liquid interface as well. Non contact, on the other hand, has advantages in large storage tanks with calm surfaces and few obstructions, where there is little chance of the antenna being splattered with process media.

This chart summaries the differences:

Technology> Process Conditions	Eclipse Guided Wave Radar (loop powered)	Non Contact Radar (loop power)
-230F to 750F	Yes	NO, much more limited. Very expensive increase for high temperature capability
Full vacuum to 5000 psi	Yes	NO
$Er < 1.4^*$	Yes	NO in turbulent conditions
Changing Er^*	Yes	Yes
Changing SG	Yes	Yes
Liquid / liquid Interface capability	Yes	NO
Vapors	Yes	Some
Foam	Most	Some
High Turbulence	Yes	NO
Buildup on antenna	Most	NO (high Er)
Obstructions	Yes	Some
Retrofit in existing chambers or bridges	Yes	Limited by size, build up and branch connections
Off Perpendicular performance (angled vessel entry)	Yes	NO
Leak Sources (pollution)	1	1
Accuracy: +/- % of Span	<0.25%	<0.25%
Fast response time	Yes	NO
Special vessel construction required (Still well)	NO	Yes in turbulent, low dielectric media
Hardware \$	Low - medium	Starts medium and can climb quickly with application, or need to go line power
Maximum range	50 Feet	66 Feet, but reduces quickly depending on process conditions.

* Er = electrical dielectric

Request technical bulletin 57-201.0 for more information on radar type comparison.

To be continued...

Be sure to watch for the conclusion of this article in your next Annunicator.



Executive 1999-2000

Position	Incumbent	Phone	Fax	E-Mail
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Membership Assistant	James Callery	337-2301	383-1736	jcallery@suncor.com
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Standards and Practices Assistant	Robert Thibault	464-6400		thibault@mooreproduct.com
Education Chairman	Kalpen Vachharajani	332-1717 ext.237	332-8715	vachhara@paton.org
ISA Show Committee Chairman	Wayne Wilkins	331-1063	337-8054	summa@idirect.com
Golf Tournament Chairman	Gary Coles	337-0777	337-4445	mvfsar@xcelco.on.ca

MEMBERSHIP FORM

INSTRUMENT SOCIETY OF AMERICA

This form may be used by any interested person wanting to join ISA or ISA International, including students. For assistance contact ISA Member & Customer Service at (919) 549-8411.

Please type or use block letters. Sign and date below, in Section 3.

1 Name ☐ Male ☐ Female Birthdate _____
 Company Name _____ Division/Works _____
 Position Title _____
☐ Check here if you are a full-time student and complete the following: School _____ Year of Graduation _____
 Mailing Address: ☐ Home ☐ Work NOTE: Student member applicant, please list permanent home address.
 Street Address / P.O. Box _____ Mail Stop _____
 City _____ State _____ Country _____
 State / Province _____ Postal Code _____ Fax _____
 Telephone (include area code or country/city code) _____
 Have you ever been a member of ISA? ☐ Yes ☐ No Previous years of membership _____
 Assign me to the _____ section of the section closest to my home address.
 Highest Education Degree Earned ☐ High School ☐ Associate ☐ Bachelor ☐ Master ☐ Doctorate
 Are you a registered professional engineer? ☐ Yes ☐ No State / Country Registered _____
☐ From time to time we may make our mailing list available to companies whose products or services may interest you, please check this box. We will respect your wishes.

2 NOTE: Sections 2, 3 and 5 must be completed for processing.

Check your primary job function:

A. General or Corporate Management ☐
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 C. Design Engineering ☐
 D. Production Engineering ☐
 E. Plant Engineering or Maintenance ☐
 F. Software Engineering ☐
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 I. Measurement, Testing, Quality or Standards ☐
 J. Research and Development ☐
 K. Technical or Engineering Support ☐
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 M. Purchasing or Procurement ☐
 N. Education or Training ☐
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 P. Other, Describe: _____

What is the primary end product manufactured or service performed at your company location?

☐ Check here if no manufacturing is done at this location.

3 Signature _____
 Date _____

5 Dues Payment Information
 Please select the level of membership for which applying:

☐ Regular Member \$85 US (Tax Deductible) \$ _____
☐ Student Member \$9 US (Limited Benefits) \$ _____
☐ Division Membership \$5 US each \$ _____
☐ Industrial Compiling Society Membership (reg. \$55) \$30 - must be an ISA Member \$ _____
 TOTAL AMOUNT DUE \$ _____

Annual ISA dues include a subscription to *INTECH*, for which a non-deductible allocation of \$5.00 is made for regular members and \$3.50 for student members.
 NOTE: The following are acceptable for sending dues payment. Please indicate the method used. Make checks payable to Instrument Society of America in US Currency only. If paying with international funds, see special note below.

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 Credit Card payment is preferred. Checks with proper M.O.T. bank account must be drawn on your bank's correspondent (if other US bank, amount payable to ISA must include any bank or other processing charges).

☐ Wire Transfer - No \$3.00 US fee for processing. Send to ISA Account #1120294, Central Carolina Bank, 4040310467. Transfer must show applicant's name and address.
☐ UNESCO Coupons ☐ Money Order - No \$3.00 US fee for processing.
 Instrument Society of America
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 P.O. Box 3561
 Durham, North Carolina 27702
 USA

If paying by credit card, fax to: (919) 549-8288

4 DIVISION ENROLLMENT - Also enroll me at \$5.00 each in the Divisions checked below. To join Divisions you must also enroll as a regular or student member.

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