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\*\*\*\*\* COUNCIL FOR \*\*\*\*\*  
\*\*\*\*\* NEAR INFRARED SPECTROSCOPY \*\*\*\*\*  
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**NEWSLETTER issue # 1**

*September 1986*

**OBJECTIVE OF THE COUNCIL** To further the understanding of near infrared spectroscopy.

**STRUCTURE:** To organize at a national level as a free-standing entity affiliated with a national society but maintaining its own constitution and bylaws, governing board, officers, and committees. It will be separately incorporated and maintain its own tax-exempt status.

**PROPOSED FUNCTIONS:**

- A. Technical Meetings and Publications will be sponsored by the Council for the publication and presentation of technical results in the field of NIR spectroscopy.
  - 1. Initiation and sponsoring of symposia at major conferences. The Pittsburgh Conference, FACSS, AACC, and EAS now have regular sessions devoted to NIR.
  - 2. Publication of a Newsletter to provide technical notes, coverage of other Council activities, letters of communication, and meeting announcements.
  - 3. Annual or Biennial NIR Conferences attracting a broad cross-section of users and potential users. The International Committee for Near Infrared Spectroscopy, in conjunction with The Royal Society of Chemistry has organized a week long conference in East Anglia, UK for July of 1987.
- B. Training programs can be a self-supporting activity, covering the range from short courses, workshops/seminars, courseware, and videotape libraries.
- C. Library functions can be developed to cover:
  - 1. Bibliographic and reference material
  - 2. Software programs including data analysis, translation of data, & communication links.
  - 3. Spectral libraries
  - 4. Applications libraries
- D. Other Activities:
  - 1. Encouraging the inclusion of NIR in the university curriculum, sponsorship of prizes and education courseware.
  - 2. The Council will look for opportunities to work with other organizations such as the ASTM, AACC, AOCS to foster greater knowledge and use of NIR spectroscopy. International cooperation and association with organizations, manufacturers, industry users, and universities is already being pursued.

## EDITORIAL PAGE

Just what the world needs: another journal! Actually this is a newsletter and is intended to remain one. Its purpose is to be the communication arm of the Council for Near Infrared Spectroscopy. And therefore, its fundamental purpose is to further the use and understanding of near infrared spectroscopy using whatever methods we can think of. This newsletter is in its formative stages with respect to everything but fundamental purpose. The format is flexible and open to suggestions from all sources - please don't hesitate to send them to me at the address below. Our current thinking is to include technical notes, letters to the editor, information on short courses, reference materials, compilations of meetings carrying near infrared sessions or papers of interest, and specialty columns on applications and data analysis hints or other topics which you the reader and user request. We do not plan to act as a journal therefore research level papers should be submitted to appropriate journals.

In addition, we are not a commercial venture therefore all projects requiring money (like this newsletter) will be done on a bootstrap with great ingenuity. This brings me to a real request - much can be done with ingenuity and volunteer labor but certain things need to be paid for like printing, paper, Council meeting rooms at major conferences, postage to keep people informed and so on. Especially at this start up time we really need interested users of Near Infrared to join the Council and support it with their membership dues-regular members \$25, student members \$10, sponsoring members \$250. Please complete the membership form on the back page of this newsletter and mail it as soon as possible, editor: Emil W. Ciurczak

Pharmaceutical Division,  
Sandoz Pharmaceuticals  
East Hanover, N.J. 07936

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## NIR ARTICLES PUBLISHED in 1986

CA:104(15) 128872u "Simultaneous Determination of Moisture, Organic Carbon, and Total Nitrogen by Near Infrared Reflectance Spectrophotometry", Dalai, R.C., Henry, R.J., Soil Sci. Soc. Am. J., 50 (1), 120-3 (1986); Fertilizers, soil and plant nutrition.

CA: 104(21) 184969t "Near Infrared Reflectance Analysis of Oil Concentration in an Emulsion: A study of oil and water migrations in a mayonnaise based salad", Davies, A.M.C., Brocklehurst, T.F., J. Sci. Food Agric., 37, 310-16 (1986); NIR analysis of the separation of oil

CA:105(2) 17246u "Critical Values of Several Statistics at High Probability Levels for Use with Near Infrared Wavelength Searches", Mark, H., Workman, J., Spectroscopy 1(5) 39-46 (1986) statistics

CAM 05(2) 14978y "Plastic Optical Fibers for Near Infrared Transmission", Kaino, T., Appl Phys Lett. 48(12) 757-8 (1986); fluorinated, deuterated polystyrene optical fiber

CA: 105(1) 5245e "Some Statistical Comments on the Errors in NIR Calibrations", Fearn, T., Anal. Proc. (London) 23(4) 123-5 (1986); baking, statistics

CA: 105(1) 5236c "Determination of Crude Protein and Fats in Carcass and Breast Muscle Samples of Poultry by Near Infrared Reflectance Spectroscopy", Valdes, E.V., Summers, J.D., Poultry Sci. 65(3) 485-90 (1986); fats

CA:105(1) 5217x "Near Infrared Reflectance Analysis in Plant Breeding", Smith, D.B. Starr, C., Anal. Proc. (London) 23(4) 125-6 (1986); food and feed

CA:105(1) 5026J "Application of Near Infrared Analysis in Brewing", Halsey, S.A., Anal. Proc. (London) 23(4) 126-7 (1986); brewing

CA:105(7) 59532q "Near Infrared Spectrophotometric Determination of Individual Sugars in Aqueous Mixtures", Giangiaco, R. Dull, G.G., J. of Food Sci. 51(3) 679-83 (1986); [cont. pg 7]

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**MINUTES OF THE ORGANIZING COMMITTEE OF THE COUNCIL ON NEAR INFRARED  
SPECTROSCOPY**

Place: Wilson College, Chambersburg, Pennsylvania; Time: August 21, 1986

<u>NAME</u>	<u>Members Present:</u>	<u>ADDRESS</u>
Franklin E. Barton II		USDA, ARS, Athens, GA
Don Burns		Technicon Industrial Systems, Tarrytown, NY
Emil W. Ciurczak		Sandoz Pharmaceuticals, East Hanover, NJ
Patrick Cooper		Pacific Scientific, Silver Spring, MD
David Funk		Dickey-John, Auburn, IL
David Hopkins		Kellogg Co, Battle Creek, MI
K.H. Norris		IRL, BARC, USDA Beltsville, MD
W.F. McClure		North Carolina State Univ, Raleigh, NC
Ed Stark		KES Analysis, New York, NY
Dave Wetzel		Kansas State Univ., Manhattan, KS

**Members Absent:**

Phil Williams	Canadian Grain Commission, Winnipeg, Canada
Ronald Spies	Continental Baking, St Louis, MO
Lois Weyer	Hercules Inc., Wilmington, DE
Rick Benson	Cargill, Minneapolis, MN
Marvi Moore	Fritolay, Carrollton, TX
Subhas Ghosh	Institute of Textile Technology, Charlottesville, VA
Dave Honigs	Univ of Washington, Seattle, WA
Jeanette Grasselli	Standard Oil, Cleveland, OH

**Observers:**

David Clark	USDA, ARS, Logan, UT
John Diffie	RJ Reynolds, Winston-Salem, NC
Dave Himmelsbach	USDA, ARS, Athens, GA
Gabor J. Kemeny	Technicon Industrial Systems, Tarrytown, NY
Howard Mark	Technicon Industrial Systems, Tarrytown, NY
Ronald Rubin	LT Industries, Rockville MD (Questron)
Jerry Workman	Technicon Industrial Systems, Tarrytown, NY

The following were nominated for office and elected as interim officers until elections can be held:

Edward Stark, President  
Karl Norris, Vice President  
Fred McClure, Secretary  
Patrick Cooper, Treasurer

Delegates to the Council at large were nominated as follows:

David Funk, Dickey-John	Don Burns, Technicon
Lois Weyer, Hercules	Phil Williams, Canadian Grain Commission
Dave Wetzel, Kansas State Univ.	Subhas Ghosh, Institute of Textile Technology

The members discussed the Constitution and Bylaws which had been prepared by Ed Stark. Both were approved following modifications that combined the duties of various committees.

**INCORPORATION AND 501(c)(3) APPLICATION:** Ed Stark was authorized to proceed to incorporate in New York and to apply for tax exempt status from the IRS in accordance with 501(c)(3) of the Internal Revenue Code.

**NATIONAL AFFILIATION:** It was voted to seek immediate affiliation with the Society of Applied Spectroscopy, (SAS) while maintaining the structure of the council.

**INTERNATIONAL AFFILIATION:** It was agreed that the Society of Applied Spectroscopy is better established to represent the USA in the International Association for Near Infrared proposed at the Hungarian Conference on NIR Spectroscopy held in May of 1986. The Council, if affiliated with SAS, would then take the lead role. Ed Stark, as Co-Chairman of the International Organizing Committee, agreed to explore the possibility of the International NIR Organization with both SAS and IMEKO

CHAMBERSBURG CONFERENCE: The suggestion that the Council sponsor further Chambersburg meetings was left for future discussion with the entire organizing body of the Chambersburg meeting because at present this meeting is a Diffuse Reflectance meeting and not strictly devoted to NIR.

MEMBERSHIP: Membership dues should be sent to the Treasurer, Dr. Patrick Cooper, Pacific Scientific Co., 2431 Linden Lane, Silver Spring MD 20901. Dues for membership are as follows:

Regular Member .....	\$ 25.00	Emeritus Member.....	none
Student Member .....	\$ 10.00	Honorary Member.....	none
Sponsoring Member....	\$ 250.00		

Biographies of nominated officers:

Edward W. Stark - Candidate for President

Edward Stark is currently an independent consultant in near infrared analysis with his own company, KES Analysis. He holds advanced degrees in physics and electrical engineering from Oberlin, University of Illinois and Brooklyn Polytechnic Institute. He has 17 patents. After specializing in electro-optics and signal processing at Sperry-Rand, he was VP Systems Management, VP Research and Development and Principal Scientist at Technicon Instrument Corp. where he was responsible for the development of clinical and industrial instrumentation including near infrared reflectance analyzers.

Karl H. Norris - Candidate for Vice-President

Mr. Norris pioneered the development of the Near Infrared Reflectance technology for the simple, accurate, rapid, and inexpensive testing of many quality characteristics of food and food grains. Mr. Norris has been with the Department of Agriculture for the past thirty-six years, an authority on instrumentation for quality evaluation of agricultural and food commodities, is currently Research Leader in the Instrumentation Research Laboratory of the U.S. Department of Agriculture's Beltsville Agricultural Research Center.

Holder of three patents, author or coauthor of more than 110 research papers, member of the National Academy of Engineering, a fellow of the American Society of Agricultural Engineers, the recipient of many awards, including the Cyrus Hall McCormick Medal from the American Society of Agricultural Engineers, the Distinguished Service Award of the U.S. Department of Agriculture, and the Alexander von Humboldt Award in recognition of his distinguished research contributions.

Fred McClure - Candidate for Secretary

Fred McClure a South Carolinian by birth, graduated from Clemson University with a BS in Agricultural Engineering. In 1959 he got his Masters Degree, with a minor in physics, from NC State University. After serving two years as an officer in the US army, Fred returned to NC

State to get his Ph.D. in Biological and Agricultural Engineering, with a minor in electrical engineering. He stayed on at NC State University to become full professor.

During his graduate work and early stages of his career he became fascinated by the bells and whistles in Karl Norris' laboratory which resulted in his deep involvement in the measurement of the optical properties of biomaterials. Norris' success with NIR encouraged McClure to investigate the potential of NIR for measuring the quality and composition of tobacco. Since that time he has studied the NIR properties of forages, peanuts, mice, and many other agricultural products. His most recent contribution to NIR technology has been the application of Fourier Transforms to the analysis of NIR data. He has written more than seventy technical publications, and holds three US patents. He teaches two courses in instrumentation, one an undergraduate course in analog instrumentation and a graduate course in computer control systems. Fred is a member of IEEE, IFT, SAS, ASTM, ASAE, and the Council on Near Infrared Spectroscopy.

Dr. Patrick J. Cooper - Candidate for Treasurer

Dr. Patrick J. Cooper received a BS degree in Chemistry from Canisius College, Buffalo, New York in 1973 and a Ph.D. degree in Physical Chemistry with a specialty in molecular spectroscopy, from the University of South Carolina, where he worked under Dr. James R. Durig.

After a postdoctoral fellowship at the Univ. of SC, he joined the Analytical Methods Development Group at R.J. Reynolds Tobacco Company primarily involved the application of IR techniques, included dispersive IR, FTIR, and NIR spectroscopy, to quality assurance and quality control problems. In 1982 he joined Pacific Scientific Instrument Division where he is currently manager of Engineering Applications. Pat is a member of the American Association for the Advancement of Science, the American Chemical Society, the New York Academy of Sciences, Sigma Xi, and, of course, the Council for Near Infrared Spectroscopy

**\*\*\* Selected Near Infrared Titles from Meetings in October 1986 \*\*\***

[cont. 71st AACC meeting]

**71st AACC**  
**ANNUAL MEETING**

**October 5-9, 1986**

Toronto, Ontario, Canada

NEAR-INFRARED ANALYSIS: Chairman: Clifford A. Watson, U.S. Department of Agriculture, Federal Grain Inspection Service, Grandview, MO

Near-Infrared Spectroscopy - Past, Present and Future. K.H. Norris

Fundamentals in Near-Infrared Spectroscopy - G.J. Kemeny and D.L. Wetzel

Mathematical Treatment W. R. of Near-Infrared Data - W.R. Hruschka

On the Testing of Strength in Wheat by Near-Infrared Reflectance - P.C. Williams

Timely Analysis by Near-Infrared Reflectance: On-Line, Remote, and Automatic - D.L. Wetzel.

Near-Infrared Instrument Capabilities - E. Stark.

Near-Infrared Spectroscopy for the Cereal Chemist: An Applications Overview - J. J. Psocka.

**ANALYTICAL-NIR**

Determination of Starch Content in Feed Grains by Near-Infrared Reflectance Spectroscopy. H. Kim and P.C. Williams.

Further Observations on Testing of Whole Grain for Protein and Moisture by Near-Infrared Transmission - P.C. Williams, D.C. Sobering, and J. Antoniszyn.

NIR Spectra of HRW Wheats Varying Widely in Protein Content and Quality. G.L. Rubenthaler and Y. Pomeranz.

Sorting of Hard and Soft Wheats Based on Spectroscopic Discriminant Analysis. G. J. Kemeny and D. L. Wetzel.

Moisture, Protein, and Hardness Measurement in Whole Grain Hard Red Wheat Using a Standard Near-Infrared Reflectance Analyzer. D.W. Hopkins.

Correlations of Functional Properties of Bread Wheats with Near-Infrared Reflectance Spectral Data. M.M. Bean and R.E. Miller

Correlation Between Mid- and Near-Infrared Absorbance Bands in Biological Compounds. P.R. Mathewson.

Analysis of Cereal Products Using Near-Infrared Spectra and Principle Components Mathematics. J. Workman and H. Mark.

Remote Operation of Near-Infrared Spectrometers in a Cereal Production Plant Using a Computerized Telecommunications Workstation. J. Workman and H. Mark.

Safe Transmission of Calibrations and Spectra. D.A. Burns.

**POSTER SESSIONS**

Application of NIRA for Beta-Glucan Determinations in Barley Grain. J.P. Madacsi, F.W. Parrish, P.E. Schott, and H. Marshall.

**40TH TOBACCO CHEMISTS' RESEARCH CONFERENCE**

Holiday Inn World's Fair

Knoxville, TN

**October 13-16, 1986**

**Tuesday, October 14 AM.- Joint Session**

9:00 #1 STATUS OF NEAR-INFRARED TECHNOLOGY IN THE TOBACCO INDUSTRY.

W.F. McClure, North Carolina State University, R.E. Williamson, USDA Tobacco Research

**Tuesday, October 14 PM:**

4:20 #22 EVALUATION OF AN NIR INSTRUMENT FOR ON-LINE MONITORING OF MENTHOL.

Luis M. Dominguez and Sydney K. Seymour, R.J. Reynolds Tobacco Company, Bowman Gray, Technical Center, & Patrick J. Cooper & Phil Clancy, Pacific Scientific

**Wednesday, October 15 PM:**

1:40 #44 TECHNIQUES FOR DEVELOPING NIRS CALIBRATIONS ON CUT FILLER TOBACCO FOR THE MEASUREMENT OF NICOTINE AND TOTAL SUGARS. J.J. Workman, Technicon Science Center

3:40 #49 NEAR-INFRARED SPECTRO- PHOTOMETRY OF TOBACCO LEAF FOR ESTIMATING TAR YIELD OF SMOKE

R.E. Williams, J.F. Chaplin USDA/ARS, Tobacco Research Lab., & W.F. McClure, NC State Univ.

## THE SILVER JUBILEE EASTERN ANALYTICAL SYMPOSIUM

October 20-24, 1986  
at the  
New York Hilton Hotel  
New York City, NY

DIFFUSE TRANSMISSION BY FT-IR  
MICROSCOPY P.R. Griffiths, Univ. of California

### **Monday, October 20 AM:**

10:40 009 TELEPHONE BUGGED? SEND SPECTRAL  
DATA ANYWAY - WITH SAFETY D.A. Burns, Technicon  
Science Center

### **Monday, October 20 PM:**

#### NEAR INFRARED SPECTROSCOPY

Organized by: T. Hirschfeld, Lawrence Livermore Natl.  
Laboratory, Livermore, CA

Chairman: E.W. Stark, KES Analysis, New York City

1:30 063 RECENT APPLICATIONS OF NEAR INFRARED  
SPECTROSCOPY D.A. Burns, Technicon Science Center,

2:05 064 NEAR INFRARED SOFTWARE STATE-OF-THE-  
ART E.W. Stark, KES Analysis, New York City

2:40 BREAK

3:00 065 APPLICATIONS OF NEAR INFRARED  
LEARNING APPROACHES TO NMR D.E. Honigs and J.B.  
Callis, Univ. of Washington

3:35 066 EVALUATION OF NIRA ALGORITHMS J.  
Workman, Technicon Instr. Corp.,

4:10 067 ON-LINE PROCESS CONTROL  
MEASUREMENTS USING NIR I. Landa, LT Industries

### **Tuesday, October 21 AM:**

10:40 087 ANALYZING NEAR-INFRARED  
SPECTRAL DATA TO PROVIDE QUANTITATIVE ANALYSES  
K.H. Norris and W.Hruschka, Agricultural Res. Center.  
USDA

### **Tuesday, October 21 PM:**

4:20 133 APPLICATION OF FACTOR ANALYSIS  
TO INFRARED QUANTITATIVE ANALYSIS R.W. Hannah, R.  
Spragg, Perkin-Elmer

[cont. E.A.S. meetings]

### **Wednesday, October 22 AM:**

11:20 169 TRANSMISSION, REFLECTION-  
ABSORPTION, DIFFUSE REFLECTION AND

### **Wednesday, October 22 PM:**

3:40 213 WHEN PURE PEAKS AREN'T PURE: AN  
APPLICATION FOR PRINCIPLE  
COMPONENT ANALYSIS OF  
SPECTROSCOPIC-CHROMATOGRAPHIC  
DATA P.J. Gemperline, Carolina Univ.

#### MOLECULAR SPECTROSCOPY: WHAT'S EXCITING?

Chairman: W. Fateley, Kansas State Univ.,  
Manhattan. KS

2:00 228 BISTABLE FIBER OPTIC SENSORS  
D. Honigs & B. Tenge, Univ. of Washington

2:40 229 NEW HORIZONS IN FT SPECTROSCOPY  
B.Chase, E.I. DuPont & Co.

3:20 BREAK

3:40 230 A TRIBUTE TO TOMAS  
W. Fateley, Kansas State Univ.

4:20 231 THE 'REST' OF FT  
W. Fateley, Kansas Univ.

### **Thursday, October 23 AM:**

9:50 255 BRINGING THE SPECTROMETER TO THE  
SAMPLE: NEW DEVELOPMENTS DEVELOPMENTS  
IN AUTOMATED BATCH AND PROCESS  
MEASUREMENT W.M. Doyle and B.C. McIntosh,  
Analect Instruments, Div. of Laser Precision Corp.

### **Thursday, October 23: POSTER SESSION**

"Atomic and Molecular Spectrometry"  
Chairman: R.H. Clifford, Villanova Univ., Villanova, PA  
Poster papers will be on display from 10:30 AM  
Authors will be available between 1:00-3:00 PM

269 NEAR-INFRARED SPECTROSCOPY: EVALUATING  
THE EFFECTS OF KNOWN SPECTRAL CHANGES ON  
WAVELENGTH SELECTION AND OPTIMAL  
MATHEMATICAL TREATMENT USING  
SYNTHETICALLY GENERATED DATA J.Workman and  
H. Mark, Technicon

[cont. E.A.S. meetings]

270 TRANSMITTANCE/REFLECTANCE INTERACTION (TRI) and TRANSMISSION NIR MEASUREMENTS OF LIQUIDS H. Goldsmith, Pacific Scientific

271 ON-LINE NIR SPECTRAL ANALYSIS - UNIQUE SOFTWARE PACKAGE TO IMPLEMENT ON-LINE CALIBRATION ON A NIR PROCESS ANALYZER P.Clancy and P.Cooper, Pacific Scientific,

272 THE REFLECTANCE WORLD IS NOT ALL MIRRORS A.J.Hockman and E.R.Hogue, Varian Instrument

Friday, October 24 PM:

2:00 342 ON-LINE ANALYTICAL CHEMISTRY J.B. Callis, Univ. of Washington.

3:50 345 LAPLACE TRANSFORM NEAR-IR SPECTROSCOPY D.E. Honigs and J.Perkins, Univ. of Wash.

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Pacific Scientific has announced a series of seminars on Near Infrared Spectroscopy:

- September 16 - Boston, MA
October 14 - Chicago, IL
October 16 - Houston, TX
December 9 - San Francisco, CA
December 11 - Los Angeles, CA

The seminars will detail essential aspects of the practice of near infrared spectroscopy, and will feature invited guest lecturers in addition to Pacific Scientific's engineering and applications staff for further information

Mr. Michael Lams, NIR Product Manager Pacific Scientific Instrument Division 243I Linden Lane, Silver Spring, MD 20910 (301-495-7000)

[Cont. from pg 2]

CA:105(4) 321 15u "Method for Daily Check of Wavelength Accuracy in Near Infrared Reflectance Spectrophotometers", Dzwinczyk, M. Mark, H., Spectroscopy 1(6) 51 (1986); calibration

CA:105(8) 69122v Advances in Near Infrared Spectroscopy", Buchanan, B.R., Honigs, D.E., Spectroscopy 1(7) 40-2 (1986); review of near infrared spectroscopy, agriculture, industry and biology

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\*\*\*\* MEETINGS IN THE FUTURE \*\*\*
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EURO FOOD CHEM IV
Loen, Norway
June 1-4, 1987

"Rapid Analyses in Food Processing and Food Control"

for information write: Euro Food Chem IV Conference Secretariate Norwegian Food Research Institute P.O. Box 50, N-1432 AS-NLH, Norway

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ROYAL SOCIETY OF CHEMISTRY
ANALYTICAL DIVISION
EAST ANGLIA REGION
ATOMIC SPECTROSCOPY
AND AUTOMATIC METHODS
GROUPS

July 12-15, 1987

"Spectroscopy Across the Spectrum: Analytical Applications of Spectroscopy"

Incorporating: The First International Near Infrared Spectroscopy Conference (Organized by the International Committee for Near Infrared Spectroscopy)

for information contact:
Dr. C.S. Creaser
School of Chemical Sciences
University of East Anglia
NORWICH, NR47TJ, UK

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Recently Past Near Infrared Conferences:

NIR/NIT '86 organized by the Hungarian Scientific Society for Food Industry: Budapest, May 12-16

IV International NIR Users Conference sponsored by Pacific Scientific: Lane End England, May 28-30

Third International Diffuse Reflectance Conference; Wilson College, Chambersburg PA, Aug. 17-22

10th International Symposium on Near Infrared Analysis sponsored by Technicon Instrument Corp.: Tarrytown, NY, Sept 9-10

ON THE LIGHTER SIDE(S) of life: Hints for Naming Research Papers

0 Nucleophilic	Stereoselective	Reaction
1 Electrophilic	Second-Order	Cyclization
2 2+2	Orbital-controlled	Substitution
3 Prochiral	Regioselective	Elimination
4 Mechanism of	Concerted	Hydrolysis
5 Base-catalyzed	Metal-Induced	Reduction
6 Kinetics of	Stereospecific	Oxydation
7 Mesomeric	Axial	Transesterification
8 Transition-state of	Antarafacial	Polymerisation
9 Free-radical	Sigmatropic	Saponification

This table's use is easy [for anyone who has eaten in a Chinese restaurant]:

Choose one word from each column. For instance : 3 5 3 The result is : "Prochiral metal-induced substitution." This expression will satisfy everybody! It is not important that you don't know what it means, your discussion partner also doesn't and he or she may never dare to ask.

Perhaps you prefer: "mesomeric orbital-controlled transesterification" (7 2 7) In this way, valuable contributions to organic-chemical discussions are created.

This terminology-salad helps the user with one thousand different expressions, which gives his conversation exactly that authority which is exclusively produced by great scientific knowledge and deep insight.

COUNCIL ELECTION OF OFFICERS AND RATIFICATION OF CONSTITUTION

All members are being sent a copy of the Constitution and Bylaws together with a ballot for ratification of the Constitution and election of officers (see biographies on page 4). Ballots must be returned to the Interim Secretary, Dr. Fred McClure, North Carolina State University, School of Agricultural and Life Sciences, Department of Biological and Agricultural Engineering, Box 7625, Raleigh, NC 27695-7625. Send in your membership now and vote.

THE COUNCIL FOR NEAR INFRARED SPECTROSCOPY - MEMBERSHIP APPLICATION

NAME: \_\_\_\_\_

PLEASE CHECK

MEMBERSHIP

MAILING ADDRESS: \_\_\_\_\_

\_\_\_\_ REGULAR \$25.00/YR

STUDENT \$10.00/YR

\_\_\_\_ SPONSORING \$250/YR

HONORARY & EMERITUS MEMBERSHIP BY INVITATION ONLY

Please make checks payable to The Council for Near Infrared Spectroscopy:

Mail to: Dr. P. Cooper  
Pacific Scientific Co.  
2431 Linden Lane, Silver Spring, MD 20901