

RELIABILITY SOCIETY NEWSLETTER



Editor: John Peter Rooney

Vol. XXVI, Issue 1, Jan. 1980 (USPS 460 200)

President's Message



Refreshing winds are stirring inside IEEE. Dr. Leo Young, the petition candidate, won the election for the office of the 1980 IEEE presidency. A socially aware, dedicated professional, and an experienced hand is at the helm of the Institute. Dr. Young served with distinction as Division IV Director, Chairman of USAC (the precursor of the United States Activities Board) and as Chairman of the

Individual Benefits and Service Committee. His salient achievement came as the Chairman of the USAB Pension Task Force which he served for four years until becoming the IEEE Executive Vice President last year. Under his leadership the Task Force drafted the legislative provisions for the House of Representatives bill H.R. 628 and the companion Senate bill S1428 both entitled "The IRA-Employer Plan Coordination Act of 1979." These bills provide for the

establishment of a Limited Employee Retirement Account (LERA) by employees, even though they may be covered by an employer-sponsored plan. This legislation would significantly aid engineers who are employed only during a project duration and as a result do not remain with one employer long enough to vest in the employer-sponsored retirement plan. It would also aid engineers who may vest in an employer plan which is less valuable than the LERA plan.

On behalf of the Reliability Society, best wishes are extended to Dr. Young on what portends to be a highly effective tenure of office. This prognosis is based on the fact that Dr. Young comes to the presidency of IEEE through the ranks as an author, editor, chairman of a major board, and as chairman of some of the major IEEE Committees. To the IEEE Societies, Groups, and Councils, Dr. Young's service as Society President should be particularly encouraging. There are numerous problems which continue to plague the Societies and which contribute to the alienation between the Societies and the Institute's governing bodies. Upon assuming the office of the presidency, it is hoped that one of Dr. Young's higher priorities will be to call a special meeting

President

T. L. Regulinski, Ph.D.
P.O. Box 295
Goodyear, AZ 85338
(602) 932-3232

VP Publications

A. O. Plait
Man-Tech Corp.
Century Suite 930
2341 Jefferson Davis
Arlington, VA 22202
(703) 979-0733

VP Meetings

C. M. Bird
IBM Corporation
103 A334
Owego, NY 13827
(607) 687-2121 Ext. 3729

Treasurer

I. A. Feigenbaum
COMSAT Laboratories
Clarksburg, MD 20734
(301) 428-4587

VP Tech. Operations

B. Retterer
Arinc Research
2551 Riva Road
Annapolis, MD 21401
(301) 224-4000

VP Membership

J. E. Victor
Westinghouse
Box 746-MS 454
Baltimore, MD 21203
(301) 765-3724

Secretary

N. J. McAfee
Westinghouse
Box 1693-MS 1267
Baltimore, MD 21203
(301) 765-3400

of the Society/Group/Council Presidents to discuss their concerns and problems with him.

Dr. T. L. Regulinski
President Reliability Society

From the Vice President, Meetings

Another year has been completed and the Reliability Society can look back with pride on the accomplishments of the year. From the standpoint of meetings, we have seen the successful accomplishment of the Annual Reliability and Maintainability Symposium, the International Reliability Physics Symposium, The Product Liability Prevention Conference, and two workshops on Software Reliability. My thanks to all who worked hard to make these conferences successful and to the Society members who attended.

The purpose of all of the conferences which we sponsor is to provide you, the members, with the technical information and exchange of views which you need to effectively do your job. I would earnestly solicit any feedback on what your meeting needs are and where we might make improvements in fulfilling these needs. Also, if you would like to offer your services to participate in the planning and conduct of one of these conferences, please make your desires known.

I am deeply grateful for the support I received during the past year and look forward, with anticipation, to another good year ahead.

Carl M. Bird
Vice President, Meetings

Editorial

On Saturday, January 20, 1979, the *New York Times* carried a front page story, headlined,

Nuclear Agency Revokes Support for Safety Study

The safety study was, of course, the Rasmussen Report, officially known as WASH 1400, *Reactor Safety Study*.

In March, 1979, the accident at Three Mile Island produced "instant" and very vocal experts, who could expound on the "unreliability" of nuclear power plants and the "...repudiation of the Rasmussen Report."

The nuclear power picture is not as black as some opponents would paint it, nor as bright as some proponents once believed. As with all human endeavours, the truth is somewhere between either extreme.

Because of our area of specialization, Reliability Engineers, whether pro or con nuclear power, have a special duty. We

should do all in our power to clarify the reliability issue. We should especially attempt to clearly present the facts to our elected officials, and the general public. If we don't, the vacuum will be filled by movie stars, candidates, and just plain rumor.

John Peter

To present differing views, drop a line to:

Editor, *Newsletter*
Old Colony Estates
16 Sansome Street
Plymouth, MA 02360

Deadlines for Future Issues

Issue	Deadline
April 1980	Feb. 18, 1980
July 1980	May 5, 1980
October 1980	Aug. 11, 1980
January 1981	Oct. 24, 1981

Free PLP Proceedings

Proceedings of the 1979 Product Liability Prevention (PLP) Conference are available, free to IEEE Reliability Society Members. Send your request, with your name, address and member number to:

Dick Jacobs
PLP Conference Chairman
23 Rumson Road
Livingston, New Jersey 07039

CHAPTER NEWS

Baltimore Chapter

The chairman of the Baltimore Chapter Reliability Group for 1979-1980 is

Jonathan Lessels
10040 Waterford Drive
Ellicott City, MD 21043

Any correspondence for the chairman should be addressed as shown.

Reliability Society Newsletter is published quarterly by the Reliability Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47th Street, New York, NY 10017. Sent automatically and without additional cost to each member of the Reliability Soc. Printed in U.S.A. Second-class postage paid at New York, NY and at additional mailing offices.

Editor: John Peter Rooney, Old Colony Estates, 16 Sansome Street, Plymouth, MA 02360.

Boston Chapter

Meet this Year's Officers and Executive Committee

Chairman	Mark Snyder	Digital Equipment Corp. (617)481-7400, X6672
Vice Chairman	Mike Johnson	RCA Corp. (617)272-4000, X3745
Secretary	Susan Eames	RCA Corp. (617)272-4000, X2327
Treasurer	Will Aubert	Sanders Associates (603)885-3970 or (617)935-5111, X53970
Programs	Sid Gorman	Raytheon Company (617)443-9521, X3414
Arrangements	Barry Glass	Sanders Associates (603)885-3575 or (617)935-5111, X53575
Publicity	Don Simpson	GTE Sylvania (617)449-2000, X3854
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Fall Lecture Series	Jake Bajakian	Raytheon Company (617)443-9521, X3242
All Day Seminar	Ed Naas	GTE Sylvania (617)449-2000, X3938
Seminar Program	Gary Kushner	Digital Equipment Corp. (617)481-7400, X5713

We're here to serve you, so if you have any questions, give us a call !!

Members' Accomplishments

GE Marketing Manager Selected IEEE Congressional Fellow

Thomas L. Fagan, market development manager for the General Electric Co. Space Division, Valley Forge, PA, has been selected by the Institute of Electrical and Electronic Engineers as a Congressional Fellow for a one-year term beginning January, 1980.

Fagan is one of two Congressional Fellows selected competitively from the 200,000-member IEEE, the world's largest professional society. Selection is based on technical competence, the ability to serve in a public environment, and evidence of service to the Institute and the profession. He will be serving as a professional staff member on a Congressional committee.

Fagan is a graduate of Franklin and Marshall College, (Lancaster, PA) in mathematics. He earned his master's degree in statistics from Villanova University (Villanova, PA). A 15-year veteran with General Electric, Fagan is a registered professional engineer, a member of the Philadelphia Engineers Club, and is listed in *Who's Who in Engineering in the Delaware Valley*.

He has also authored scientific articles, submitted patent disclosures, and taught company courses in math and calculus certified for transfer credit by the Penn. State Board of Higher Education. In addition, Fagan is an Adjunct Professor of Mathematics at Philadelphia Community College. He has served as chairman of the 5,200-member IEEE Philadelphia Section and as past chairman of the Philadelphia IEEE Reliability Society Chapter.

Married to the former Lois Conley of Drexel Hill, he resides with his wife and three children in West Chester, PA.

Member Travels to China

Dr. and Mrs. W. Thomas Weir were members of a recent U.S. scientific delegation to the People's Republic of China. Dr. Weir is president and chairman of the board of directors of Evaluation Associates, Inc. of Bala Cynwyd, Pa; an engineering firm doing safety and reliability evaluations of power plants, military and commercial systems.

The Chinese Institute of Electronics invited the Institute of Electrical and Electronics Engineers to send a technical delegation to China. Seventeen delegates (ten men and

seven wives) visited China from September 15 to October 7. The delegation toured Canton, Hangzhou, Shanghai, Nanking, Xian, and Peking, visiting universities, research institutes, hospitals, and radio factories, participating in technical interchanges and seeing cultural and historic sites in China.

Dr. Weir lectured on Systems Engineering and Operations Research with particular emphasis on reliability, maintainability, and safety engineering.

The delegation members were guests at a reception given in the Great Hall of the People by Comrade Hua Guofeng, chairman of the Central Committee of the Communist Party and premier of the State Council, to commemorate the 30th

anniversary of the founding of the People's Republic of China. They also met with Vice Premier Wang Zhen in a press conference where the Vice Premier answered the delegation's questions regarding technology in China.

Please note:

Dr. Regulinski's address is:
T. L. Regulinski, Ph.D.
P.O. Box 295
Goodyear, AZ 85338

Welcome to New Members

Philip P. Carvey
7 Daniels Dr.
Bedford, MA 01730

Stewart E. Topping, Jr.
78 Old Country Way
Braintree, MA 02184

Wilfred R. Bruneau
28 Chestnut St.
Hopkinton, MA 01748

James M. Ferrone
32 Olive Ct.
Farmingville, NY 11738

Hazara S. Rathore
68 Scott Drive
Wappingers Falls, NY 12590

Barbara J. Taute
PMM & Co.
345 Park Ave.
New York, NY 10022

James Sheehy
48 Leigh Terr.
Glen Rock, NJ 07452

Susan D. Schlough
Bell Labs
555 Union Blvd.
Allentown, PA 18103

Timothy D. Vismor
5722 Fifth Ave.
Pittsburgh, PA 15232

James R. Rowe
3421 Font Hill Dr.
Ellicott City, MD 21043

Daniel K. Watson
1101 Pawnee Tr., Apt #3
Georgetown, KY 40324

Viren N. Mehta
8427 Dempster
Niles, IL 60648

Daryl J. Hannes
118 W. Main St.
Marblehead, OH 43440

David F. Montague
Univ. of Tennessee
Dept. of Nuclear Engr.
Knoxville, TN 37916

Thomas H. Cooper
3 Shayne Ln.
Palm Bay, FL 32905

Richard V. Calfee
2040 Goldsmith
Houston, TX 77030

Fitz D. Jackson
3134 Mosby Dr.
Sugar Land, TX 77478

Fred E. Eggleston
321 Coulee Dr.
Bozeman, MT 59715

Ronald P. Freswick
506 North 20th
Bozeman, MT 59715

William J. Weber
820 N. Tracy
Bozeman, MT 59715

Robert J. Halford
Cray Research Inc.
Industrial Park
Chippewa Falls, WI 54729

Mark D. Scheffler
1009 Vilas Ave., Apt. 2
Madison, WI 53715

Arthur Fries
Univ. of Wisconsin
Dept. of Statistics
Madison, WI 53706

Randall J. Parr
114 Indian Wells Lane
Colorado Springs, CO 80919

Marsha A. Haugen
Hewlett Packard Co.
P.O. Box 301
Loveland, CO 80537

Roger T. Sponaugle
2811 S. Kenneth Pl.
Tempe, AZ 85282

Nailah Y. Malik
263 Mathilda Dr., Apt. 4
Goleta, CA 93017

Frank J. Moreno
701 Santa Barbara Dr.
Claremont, CA 91711

R. J. Orford
23 19th St.
Hermosa Beach, CA 90254

Theodore E. Washburn
1219 Carmel Terrace
Los Altos, CA 94022

Abdolali Gorji-Sinaki
11929 Venice Blvd., Apt. 225
Los Angeles, CA 90066

Howard E. Lambert
8866 Skyline Blvd.
Oakland, CA 94611

Stephanie A. Herrin
2150 Bowdoin
Palo Alto, CA 94306

Philip L. Dahm
3065 Bowers Ave.
Intel Corp.
Santa Clara, CA 95051

Gerda Westendorf
Natl Semiconductor
2900 Semiconductor Dr., MSD 3601
Santa Clara, CA 95051

Joseph M. Patterson
2425 Ocean Ave.
Venice, CA 90291

Jerry E. Kirschenbaum
6161 Glide Ave.
Woodland Hills, CA 91367

Richard J. Howell
280 North Palm Avenue, C
Upland, CA 91786

Ibtisam Y. Abu-Duhou
19 Vincent St.
Mt. Druitt, NSW, Australia 2770

Vladimir G. Pinto
Rua Domingues De Sa N 224/1001
Niteroi, RJ, Brasil 24000

Sandoval Carneiro, Jr.
Caixa Postal 1191 ZC-00
Rio De Janeiro, RJ, Brazil

Mauro A. D. Silva
Al Jau 1877, Apto 32
Sao Paulo, Sp/Brasil 01420

Jose T. Munoz
325 Besserer St., Apt. 2D3
Ottawa, Ont. Canada Kin 6B4

Hilaire M. A. Perera
17 Brisbourne Grove
Scarborough, Ont, Canada M1B 1P2

Gregory D. Assen
C/O Mitel Semiconductor
18 Airport Blvd.
Bromont, Que, Canada Joe 1L0

Nachum Frenkel
1375 Jules Poitras #110
St. Laurent, Que, Canada H4N 1Y7

Bent J. Borup
Cydebauken 4
Farum, Denmark 3520

Peter Finnerup
Syvendehusvej 40 A
2750 Ballerup Dk-Denmark

Norio Baba
C/O Prof. Lions-Iria
Domaine De Voluceau
Rocquencourt BP 105
78150 Le Chesnay France

Harmen R. Van As
IM Kalten Born 22
D-5900 Siegen 24, West Germany

Chik Lam
RM 605 Block 3
Lam Tin
Kowloon, Hong Kong

Haitham S. Al-Malah
Al-Tairan 40/259
Mosul, Iraq

Soresini Franco
Via Dei Laboratori Olivetti
20010 Pregnana Milanese
Milano, Italy

Caldi Felice
Ever SNC
Via Favini
20060 Mulazzano, NI, Italy

Mario Pozzetti
C/O Finike It Marposs
Via Saliceto 13
Bentivoglio, Bo, Italy 40010

Ik Soo Chang
Sogang Univ.
CPO Box 1142
Seoul, Korea

Lee Soo Young
2-6 Young-Deung-Po Dong
Young Deung Po-Ku
Seoul, Korea 150-00

Franciso J. Plata
Apdo Postal 133
Cuernavaca, Monelas, Mexico

Gunnan A. Loe
Glimmerveien 2
3600 Kongsberg, Norway

Felix B. Chavez
Estafeta Universitaria
Univ. de Panama
Panama, Panama

Jaime R. Barnaby
Calderon de la Barca 110
Lima 32, Peru

Antonio R. Galvez
Calle 2 No. 278
Urb Jacaranda
Lima 34, Peru

Jose M. Vazquez
Jerez 4
Madrid 16, Spain

Bengt Stavenow
Rabyvagen 15G 14
S-22357 Lund, Sweden

1980 INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM

April 8—10, 1980 • Caesar's Palace • Las Vegas, Nevada

The eighteenth annual symposium, cosponsored by the IEEE Group on Reliability and the Electron Devices Society, emphasizes reliability physics as the link between part reliability and part design and process technology.

The 1980 Symposium will emphasize the reliability physics of LSI and VLSI devices from design through processing, packaging, and testing. Papers are especially solicited in this area; however, work in all areas of reliability physics will be included in the program.

For general conference information contact:

Mr. Glen T. Cheney, General Chairman
1980 International Reliability Physics Symposium
Bell Laboratories
555 Union Boulevard
Allentown, PA 18103
(215) 439-7628

The Proceedings for 1979 are now available. Attendees and members of IEEE Reliability Society get their copy in the mail. Others may obtain a copy through IEEE Service Center, Single Copy Sales Unit, 445 Hoes Lane, Piscataway, NJ 08854, (201) 981-0600. Request Catalog No. 79CH1425-8PHY. The price is \$16.00 per copy; a 25% discount will be allowed IEEE members.

CALL FOR PAPERS

IEEE POWER ENGINEERING SOCIETY 1980 SUMMER MEETING

July 13-18, 1980 Minneapolis, Minnesota

R. D. Masiello, Chairman

Technical Program, 1980 Summer Meeting

The 1980 Summer Meeting of the IEEE Power Engineering Society will be held July 13-18, 1980, in Minneapolis, Minnesota. This meeting will include all subjects in the power field.

Authors who have significant contributions in the power field are invited to submit papers for review by the appropriate Technical Committee. Prospective authors are urged to request a *Power Author's Kit* from IEEE, PES Special Activities Office, 345 East 47th Street, New York, NY 10017, USA. The kit includes a Declaration of Intent form, a *Publication Guide for Power Engineers* outlining the current requirements, and a supply of model paper on which the manuscript is to be typed. The Declaration of Intent form should be returned as soon as possible, preferably by return mail, so that preliminary plans may be made to include the paper in the technical program.

February 1, 1980, is the deadline for receipt of original manuscripts at IEEE Headquarters if the paper is to be considered for the 1980 Summer Meeting. Page limits, typing requirements, and the location of illustrations and photographs are specified in the Publication Guide. Each paper will be reviewed by the appropriate Technical Committee. All accepted papers will be published in the *Transactions on Power Apparatus and Systems* either in full (F) or in abstract (A). Preprints of all papers approved for presentation will be available prior to and at the meeting.

IEEE Transactions on Components, Hybrids, and Manufacturing Technology

Special Issue on Manufacturing Technology
September 1980

The objective of this special issue is to encourage the publication of recent developments and unique applications of technology in the manufacture of electronic components and hybrids.

Manufacturing technology is the "how to" arm of applied research. Reporting is sought in areas of improved processing techniques, handling, or equipment. In addition, papers dealing with unique manufacturing technology applications of components and hybrids are welcome.

Topics to be included are

- Electronic controls for high production operations. Automotive, television.
- Automatic warehousing.
- Automatic parts handling and inspection.
- Inventory and production control systems.
- Automatic process control systems.
- Test systems for automatic component, hybrid selection.
- Maintenance systems for the automatic factory.
- Human engineering factors in the design and operation of the automatic factory.

The deadline for submittal of final papers is February 1, 1980. The Guest Editor for this issue is

Sam Shina
Hewlett-Packard
175 Wyman Street
Waltham, MA 02154
(617) 890-6300

Abstracts and papers should be mailed directly to Mr. Shina.

Eighteenth Annual Spring Reliability Seminar

The Eighteenth Annual Spring Reliability Seminar has been scheduled for April 24, 1980. The Seminar will be hosted by the *IEEE Boston Section Reliability Chapter*. The theme of this year's Seminar will be "The Growing Dependence on the Assurance Sciences."

A Call for Papers is issued in the following broad topic areas:

- Reliability
- Maintainability
- Availability
- System Safety
- Integrated Logistics Support
- Life Cycle Cost/Design-To-Cost
- Reliability Improvement Warranties
- Software Reliability
- Human Factors Engineering
- Reliability Growth

Interested authors should prepare and submit an abstract of 300 to 500 words, accompanied with a biographical sketch, by November 30, 1979. Selected authors will be notified by December 28, 1979. Completed papers, suitable for reproduction in the Seminar Proceedings, will be required by March 14, 1980.

Abstracts and biographical sketches should be sent to:

Mr. Gary Kushner, Technical Program Chairman
GTE Sylvania
10-682
66 "B" Street
Needham, MA 02194

Questions concerning the Seminar may be directed to Mr. Edward L. Naas, Seminar Chairman, c/o GTE Sylvania, Bldg. 10-6810, 77 "A" Street, Needham, MA 02194, or by telephone at (617) 449-2000 ext. 3938

Reliability '81

Third National Reliability Conference.

29 April —
1 May 1981 (Note 1981!)



National Centre of Systems
Reliability,
Wigshaw Lane,
Culcheth,
Warrington WA3 4NE
Tel. Warrington 31244



Institute of Quality
Assurance,
54 Princes Gate,
Exhibition Road,
London SW7 2PG
Tel. 01-584 9026

Theme 'Reliability — Risks, Resources, Rewards'

The Conference aims

To provide a forum for the dissemination of information on reliability management and methods.

To present the benefits of reliability technology as applied to savings in capital, energy, resources and operating costs.

To present methods of assessing and minimising risk and improving operational safety.

To survey current reliability and maintainability techniques in a range of industries.

To present methods of reliability data collection, analysis and interpretation.

To present specific case histories and analyse their impact on design, operation and maintenance procedures.

To consider problem areas and possible future developments and applications.

Sponsorship

The Conference will be held under the joint sponsorship of the National Centre of Systems Reliability and the Institute of Quality Assurance in association with major institutions, universities, government bodies and industry.

Venue

The Metropole Hotel
National Exhibition Centre
Birmingham.

Synopsis

A 250 word synopsis based on a paper of up to 4,000 words should be forwarded to: — Mr. A. Cross at the National Centre of Systems Reliability by 31 March, 1980. Complete papers will be required for assessment by 30 September, 1980.

Papers

Offers of papers for inclusion in the conference programme are invited for consideration by the Organising Committee. The following list of topic areas is given for guidance.

1. Reliability management, cost and benefits.
2. Attainment of reliability objectives in design, manufacture, operation or maintenance, including life-cycle costs, reliability investment, contracts, warranties, consumer aspects, etc.
3. Product liability, health and safety, risk and safety assessment, human factors.
4. Reliability, maintainability, availability and safety modelling techniques.
5. Reliability testing; other Quality Assurance activities.
6. Reliability applications in industry, service utilities, defence etc.
7. Data collection and analysis. Implementation of data systems, interpretation of data, data characteristics and patterns, field, laboratory and accelerated test data.
8. Common mode failures and rare events.
9. Reliability and QA of software.
10. Problem areas, future trends.

Call
for Papers

5th Annual Control of Power Systems

Energy Management...The Challenge of the 80's
Conference and Exposition

Lincoln Plaza Forum
Oklahoma City, Oklahoma
March 17-18-19, 1980

Meeting Notice

Technical sessions will focus on all aspects of Electric Energy Management and Control including: User Load Control, System Energy Dispatching, Alternate Energy Sources, and Electric Energy Control.

The Exposition will feature exhibits displaying equipment or services relating to Energy Management.

Contact Lester Burris (405) 272-3086, Box 321, MC 105, Oklahoma City, Oklahoma 73101.

IECEC '80

15th Intersociety Energy Conversion
Engineering Conference

"Energy to the 21st Century"

August 18-22, 1980
Olympic Hotel
Seattle, Washington

Power System Planning

A 3½-day Short Course on "Electric Power Generation—Rational of Utility Planning Processes Explained" will be given at the University of Ottawa on May 26-29, 1980.

The course will cover Load Forecasting, System Planning Objectives and Basic Methodology, Reliability Assessment, Nuclear Power Economics and Waste Disposal, Load Management, Rate Setting as well as Station Siting and Transmission Line Route Selection.

The course will be presented by Dr. Kurt F. Schenk, University of Ottawa, Dr. Narayan S. Rau and Mr. Derek Chase, National Energy Board, Ottawa, Mr. Bill Ellis, B.C. Hydro, Mr. Thomas B. Reynolds, Ontario Hydro and Mr. Robert H. Sarikas, Foster Associates Inc.

The opening address will be given by Mr. Richard Maullin, Chairman, California Energy Commission, and the keynote address will be given by Mr. Vern Millard, Chairman, Energy Resources Conservation Board of Alberta.

The fee will be \$450.00.

For a detailed course description and registration, contact:

Dr. K. F. Schenk,
Electrical Engineering Department,
University of Ottawa,
Ottawa, Ontario, Canada K1N 6N5
(613) 231-3456 or 2355

Third International Conference on Thermoelectric Energy Conversion

March 12-14, 1980

sponsored by

Graduate School and
Electrical Engineering Department
University of Texas at Arlington
Arlington, Texas 76019

and

Ft. Worth Section and Region V of IEEE

Conference sessions will be held on the campus of the University of Texas at Arlington.

The purpose of the Conference is to bring together an international group of specialists working in all areas of thermoelectric energy conversion. The interactions between these specialists, both formal and informal, will provide an exchange of recent results, identification of new problem areas and planning guidelines for engineering, scientific, industrial, medical and academic community with all aspects of thermoelectric energy conversion. The first and second International Conferences held on this campus Sept. 1-3, 1976 and March 22-24, 1978 respectively were supported by experts from USSR, Israel, Italy, Canada, Columbia, Puerto Rico, Rumania, Australia, England, France, India, Poland and USA.

Papers on various aspects of thermoelectric (TE) energy conversion include

1. Analysis of TE Devices
2. TE materials (present and proposed)
3. TE power generators
4. TE heat pumps (solid state coolers)
5. TE systems (design, fabrication, testing, evaluation and quality control)
6. Novel TE devices
7. Applications in commercial, biomedical, space, defense, and industrial fields
8. Hybrid systems
9. Transient behavior of TE devices
10. Thin film thermoelectrics
11. Cost criteria and economics of TE energy conversion

Conference proceedings will be published and distributed to all the registered participants.

Direct all correspondence to:

K. R. Rao
Professor of Electrical Engineering
University of Texas at Arlington
Arlington, TX 76019 USA
(Phone 817-273-2671)

Career Opportunities

IIT RESEARCH INSTITUTE

A multi-disciplinary scientific research organization is currently seeking ambitious candidates to work in a semi-academic atmosphere in historic Rome, New York. You will work with a group that routinely conducts state-of-the-art analyses, provides consultation to both industrial companies and government agencies, and participates in technical committees and symposia. These openings provide an excellent opportunity to work with leaders in the electronics, mechanical and software industries and make significant contributions to these increasingly important and expanding areas.

Electronics Reliability Engineering

Perform critical analysis of externally generated reliability data on state-of-the-art electronic components. Conduct studies and prepare reports on failure modes and mechanisms, specifications, qualification practices and reliability control procedures associated with digital/hybrid microcircuits. BSEE or Physics Degree required.

Mechanical Reliability Engineering

Conduct reliability data analysis and provide consultation on mechanical, electro-mechanical, hydraulic and pneumatic systems and components. Critical evaluation of externally generated information is utilized in the preparation of reports, recommendations and widely distributed publications. BS Degree in Mechanical or Industrial Engineering required.

Systems Reliability/Maintainability

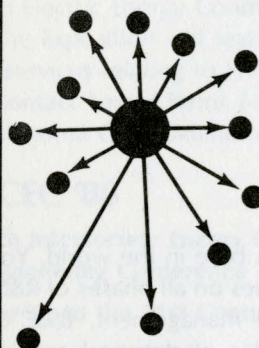
Assist senior engineers in conducting analyses of externally generated systems level R&M data utilizing the most exten-

sive and comprehensive R&M data base in the world. You will also assist in consulting activities on all phases of R&M modeling, prediction, testing and management. BSEE or Physics Degree required. Knowledge of statistical analysis helpful but not mandatory.

Software Engineering/Data Analysis

Perform research in the software engineering field including the validation and refinement of software cost, complexity, and reliability models. The applicant must have a BS or MS Degree in a quantitative field with practical experience in empirical data analysis. For this opportunity please reply to the attention of Lorraine Duvall at the address below. For the first three openings, please send resume and salary requirements to:

Charles E. Ehrenfried
IIT Research Institute
P.O. Box 1355
Branch Post Office
Rome, NY 13440



AVAILABILITY ENGINEERS BREAK AWAY!

...and come to MIDDLE SOUTH SERVICES, INC. We have an outstanding record as the specialized technical and professional arm of the MIDDLE SOUTH UTILITY SYSTEM. In just 15 years our employee force has increased by more than 20 fold to keep up with the growth of the companies that we serve. We are currently seeking professionals anxious for career development and with the ability to make it all possible.

Applicants preferred with MS Degree in Engineering, Math, Physics and experienced in any one of the following specialized fields: Design Engineering, Maintainability Engineering, Advanced Methods Development, or Operations Research/Optimization Techniques. Selected individual will assist in developing and maintaining a program for the improvement and control of the availability of existing and future generating plants in the Middle South Utility System.

At MIDDLE SOUTH SERVICES, INC. you can expect an excellent salary, full benefits (including relocation), remarkable career growth and the lifestyle advantages that can only be found in beautiful New Orleans.

For immediate consideration, send your resume (or use the attached mini-resume) to: NEWTON J. SPITZFADEN, or call collect: 504-529-5262 ext. 212.



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NAME _____
 ADDRESS _____
 CITY _____ STATE _____ ZIP _____
 HOME PHONE _____ BUSINESS PHONE _____
 POSITION APPLYING FOR _____
 CURRENT EMPLOYER _____
 CURRENT SALARY _____ # YEARS EXPERIENCE _____

An Invitation To Membership

There is no better time than now to join the IEEE Reliability Society. Membership gives you ready access to meetings and conferences in your areas of interest, and to the prime movers in engineering, science, and business.

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- Annual Reliability and Maintainability Symposium,
- International Reliability Physics Symposium.

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Active local Reliability Society chapters in many locations throughout the United States offer opportunities for your personal professional participation and growth. Association with other Reliability Society members helps you to exchange information and experiences on current technical problems and to learn how others are solving them.

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* The age and sex information requested on the application form are for demographic purposes ONLY. The information (or lack thereof) does NOT affect the application at all.

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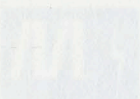
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informed of the latest developments in your field. The IEEE Reliability Society, the only society of its kind, is a professional organization that is dedicated to the advancement of the reliability of electrical and electronic systems. It is a society of engineers, scientists, and technicians who are interested in the reliability of electrical and electronic systems. The society provides a forum for the exchange of information and experiences of current technical problems and to learn how others are solving them.

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