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# EPR NEWSLETTER

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***From the Editor—***

We are pleased to announce that Prof. Graham Timmins, University of New Mexico, has agreed to be an Associate Editor of the Newsletter. Graham is a member of the faculty of Medicinal Chemistry and Toxicology, and his special research focus is in free radicals in biology. He holds a BSc and PhD in Biochemistry from the University of Leeds, UK. Please contact him with items (news, notices and technical notes and comments) or ideas for the EPR Newsletter. His e-mail address is ***gtimmins@salud.unm.edu.***

Members, **please** pay your IES dues each year and recruit some new members, else the Newsletters and Directories cannot keep coming! You can find our record of your dues payments and instructions for payment on the web; link from the IES Web site: ***http://ierc.scs.uiuc.edu/IES.html.***

Please send in news, notices, and technical items for possible publication. They may be sent to the editorial office (ierc@uiuc.edu) or to Graham Timmins. When submitting announcements of scientific meetings for publication in the Newsletter, please provide a plain text file.

R. Linn Belford, Urbana

***Letter from the President—***

Much of the information in this letter to members was presented as a Report from the President to the IES General Meeting held during the 24th EPR International Symposium, Denver July 31st, 2001. As a number of items foreshadowed have now happened, it seemed sensible to turn the Report into this 'From the President' letter.

**THANKS**

Thanks are due to Becky Gallivan who runs the Office in Urbana, to Newsletter Editor, Linn Belford, and Treasurer Chris Felix. Their contribution has been made more difficult as we have not been able to afford to provide paid help since Martha Moore's resignation in March 2000. I thank all members of the Executive for coping with my many email messages and for their support. We continue to be grateful to Bruker AG for covering the costs of Newsletter mailing around the world. - *continued on page 4* -

## IES AWARD WINNERS for 2001

**YEAR 2001 Gold Medal To Prof. Klaus Möbius, Free University of Berlin.**

Professor Klaus Möbius from the Free University of Berlin is a most distinguished member of the EPR/ESR community carrying before him all the major awards in EPR spectroscopy including the Bruker and Zavoisky Prizes, a Silver Medal for Chemistry from the International EPR (ESR) Society and also the Ampere Award for Magnetic Resonance. His contributions to multi-frequency resonance as a widely applied method for the study of paramagnetic centers and the combination of ENDOR and TRIPLE resonance with time-resolved techniques are all noteworthy, leading to breakthroughs in the investigation of photo-synthetic reaction centers. He long realized the importance of high frequency EPR and was instrumental in scaling up already highly sophisticated and optimized X-band facilities to higher and higher

*Left to Right: John Pilbrow [IES President], Carlo Corvaja [Silver Medal for Chemistry], Klaus Möbius [Gold Medal] and Gert Denninger [Silver Medal for Physics/Materials Science]. Presentations at ISMAR 2001 followed the Plenary Session, 21st August 2001 on the isle of Rhodes, Greece.*


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frequencies. The success story of the "Berlin EPR group", and the Center he established, are intimately linked with the name of Klaus Möbius. Friends and colleagues from all over the world benefitted from the truly international atmosphere in the laboratory, in which many people came as scientists and left as friends In awarding Klaus Möbius the 2001 Gold Medal of the International Society, we are honoring an outstanding scientist and a promoter of international collaboration and goodwill throughout the field of EPR spectroscopy.

**Silver Medal in Chemistry Jointly to Prof. Carlo Corvaja, University of Padua, Italy and Prof. Seigo Yamauchi, Tohoku University, Japan.**

**Professor Carlo Corvaja**, from the University of Padua, is being awarded Silver Medal honors by the International EPR (ESR) Society for distinguished contributions to EPR spectroscopy over more than 35 years. He has successfully applied EPR, ENDOR, zero-field EPR, high-field EPR and time resolved EPR to investigations of radical anions, radical ion pairs, free radicals trapped in single crystals, excited triplet traps and triplet excitons in charge transfer crystals and photo-excited states of large aromatic molecules including fullerenes. His investigation of the interaction between free radicals and excited triplet states, which gives rise to spin-polarized Time Resolved EPR spectra through the Radical Triplet Pair Mechanism, showed that this mechanism operates not only in liquid solution but also in crystalline solids and that it also operates inside the same molecular complex containing a triplet precursor and a free radical. These experiments demonstrated subtle details of the spin dynamics in complexes consisting of a nitroxide radical covalently bound to fullerene $C_{60}$ derivatives in which the excited quartet state of a radical-triplet pair was observed for the first time. Thus, the International EPR Society has judged Professor Corvaja worthy to share its 2001 Silver Medal for Chemistry with Professor Seigo Yamauchi, Tohoku University, Japan.

**Professor Seigo Yamauchi**, from Tohoku University in Japan, is being awarded Silver Medal honors by the International EPR (ESR) Society for his significant work on spin states of organic molecules. These include radical pair, excited doublet, triplet, quartet and quintet states investigated by means of a variety of EPR techniques both in solution and in the solid state. To do this work, Professor Yamauchi has constructed spectrometers for ODMR, Time Resolved EPR, FT-EPR and Time Resolved-ENDOR. He was among the first to apply ODMR and TR-EPR to study organometallic Rh, Ru and Pt compounds. He studied sublevel properties of the lowest excited triplet states of quinoxaline and benzophenone systems with emphasis on the analysis of internal and external heavy atom effects. Later he concentrated on photo-CIDEP studies both on radical and radical-pair intermediates. A recent important contribution has been the observation of excited triplet state spectra in fluid solution, which has been one of the dreams of EPR photo chemists. By initiating international cooperation, Prof Yamauchi has extended this work successfully to W-band high-field EPR. Accordingly, the Society is pleased to award Professor Yamauchi the 2001 Silver Medal for Chemistry. The award is shared with Professor Carlo Corvaja, University of Padua, Italy.

**Silver Medal in Physics/Materials Science to Prof. Gert Denninger, University of Stuttgart.**

Professor Gert Denninger graduated in physics from the University of Würzburg, gaining his doctorate in 1982 for the discovery of "Inverse Photo-Emission". After a short period in industry, building and testing equipment for lung function diagnosis, he resumed his research career, this time in magnetic resonance in the institute of Professor Schwoerer, University of Bayreuth. Here he introduced "Overhauser Shift Spectroscopy" applied to organic metals, achieving extremely high precision in measuring the hyperfine interaction for delocalized electrons, not only with protons, but also with $^{13}C$ nuclei in natural abundance, opening the way for a microscopic interpretation of their electronic structure. Denninger and co-workers achieved a world record for conductivity in the conducting polymer polyacetylene, settling a debate about whether metallic conductivities could be achieved. Very important recent work has been the first optical detection of magnetic resonance and NMR in single semiconductor heterostructures such as GaAS/GaAlAs, and high precision determination of electric field gradients in semiconductors. Finally, he achieved the first direct ESR detection of conduction electrons in a 2D electron gas. His current research is substantially devoted to ESR investigations of semiconductor nanostructures. Gert Denninger is judged a worthy recipient of the 2001 Silver Medal for Physics/Materials Science of the International EPR (ESR) Society.

**Silver Medal for Biology and Medicine to Prof. Balaraman Kalyanaraman, Medical College of Wisconsin.**

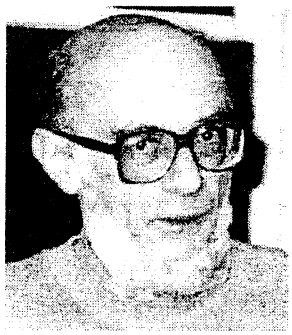
Professor Balaraman Kalyanaraman, Director of the Biophysics Research Institute of the Medical College of Wisconsin, has devoted his career to understanding the role of free radicals in biological systems. He initiated early spin trapping studies of carbon tetrachloride and adriamycin metabolism, followed by investigations of catechol metabolism, lignin biodegradation, merocyanine phototherapy, free radicals in myocardial injury and surgery, low density lipoprotein oxidation, eNOS and its relationship to adriamycin cardiotoxicity, and the role of SOD mutants in Lou Gehrig's disease. The overriding theme of his work has been the detection of free radicals in a context that is biologically meaningful, focusing on diseased states. His latest interest is in the role of free radicals in signal transduction within cells. A highly cited author, his contributions to the field of free radical biology and medicine are further indicated by his appointment as Associate Editor to the journal of that name.

*Prof. "Raman" Kalyanaraman following his Silver Medal presentation lecture at at the 24th International EPR Symposium in Denver, 31 July, 2001.*

Recently he created the unique Free Radical Research Center to further investigations of the biology of free radicals. His work is characterised by a high level of rigor and innovation, and may well lead to improved health care. The International EPR (ESR) Society is pleased to honor him with the 2001 Silver Medal for Biology and Medicine.

**Silver Medal in Instrumentation to Dr. Tadeusz Walczak, Dartmouth College, USA.**

Dr. Tadeusz Walczak, now of Dartmouth College, has had a significant impact on the development of EPR instrumentation, especially for *in vivo* applications. His development of innovative and sensitive resonators is especially noteworthy where his designs and ideas dominate the field. He has also made very major innovations to compensate for the motions encountered with *in vivo* EPR, providing elegant and effective solutions to a critical problem. He also has developed a number of unique and effective approaches for studying the rapid kinetics associated with photosynthesis. The L-Band systems that he has designed and built are the prototypes for many of the instruments throughout the world. His instruments consistently provide the best signal to noise for most types of samples. In partnership with Hal Swartz, he has provided the leading technology that has enabled EPR Centers for *in vivo* EPR at the U. of Illinois and then at Dartmouth to be developed and continuously refunded by NIH. He also has been a leader in the dissemination of EPR technology, freely offering advice and fully sharing his technical innovations. The International EPR (ESR) Society honors Ted Walczak as a creative and innovative scientist with the 2001 Silver Medal for Instrumentation.



*Dr. Tadeusz Walczak, winner of 2001 IES Silver Medal for Instrumentation. The award was presented by Professor Sandra Eaton in Hanover, NH, USA, September, 2001.*

**Young Investigator Award to Dr. Mark Newton, King's College, London.**

A graduate of the Universities of Warwick and Oxford in the UK, Dr. Mark Newton is honoured for his contribution to magnetic resonance characterisation of defects in diamond. Largely through his single-handed effort, the subject of point EPR defects in diamond has begun to be transformed from a catalogue of curiosities to a real understanding of the structure and formation of the defects. This required careful high precision $^{14}N$ ENDOR for nitrogen-containing defects and precise $^{13}C$ EPR hyperfine measurements for $^{13}C$-enriched synthetic diamonds of high purity and quality. Thus Dr. Newton has been able to characterize many important defects produced by irradiation, including the self-interstitial, the di-interstitial and the di-vacancy. To use a biological metaphor, he has transformed the subject from taxonomy to biochemistry. At Oxford, where most of his research has been carried out, he developed novel equipment for electron irradiation at stabilized temperatures between 100 and 450K, facilities for EPR measurements during isothermal annealing at temperatures up to 1000K, and microwave imaging systems operating at both 9.5 and 35 GHz with 20 micron resolution to study inhomogeneous distributions of defects in diamond. In 1999 he moved to the Department of Physics, King's College, London.

*Prof. Sandra Eaton presents IES Young Investigator Award to Dr. Mark Newton at 34th Annual International Meeting of the ESR Group of the Royal Society of Chemistry, April, 2001, University of Bristol, UK.*

**IES Fellow of 2001: Prof. Emeritus James R. Bolton, University of Western Ontario and Bolton Photosciences.**

James R. Bolton, born in Canada, studied Chemistry as an undergraduate at the University of Saskatchewan, where he completed his MA in 1960. His early EPR work at Cambridge University, mainly on aromatic cations in solution, yielded more than a dozen papers and led to his 1963 PhD under the tutelage of Alan Carrington. A brief post-doctoral stint with George Fraenkel at Columbia was followed by a six productive years on the faculty of the University of Minnesota, where Jim began a very fruitful association with John Wertz. Lured to the Chemistry Department of the University of Western Ontario in 1970, where he currently is Professor Emeritus of Chemistry, he had a very distinguished career for more than two decades, producing more than 200 publications. His research gradually shifted focus from aromatic anions and cations to photo-generated species, and photochemistry in general, with emphasis on flash photolysis and time-resolved spectroscopy. Involvement in industrial aspects of photochemistry led him to found his own company, Bolton Photosciences, Inc. (Ayr, Canada), where he is President. He is well-known for co-authoring the texts "Electron Spin Resonance" 1972 with John Wertz, and "Electron Paramagnetic Resonance" 1994 with John Weil and John Wertz, which have exerted a major influence on the Magnetic Resonance Community. The International EPR (ESR) Society is proud to welcome Jim Bolton as a new Fellow of the Society.

*Jim Bolton, IES Fellow, 2001.*

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## *In memory of Jerry Babcock - 1946-2000*

Dr. Gerald T. Babcock, University Distinguished Professor of Chemistry at Michigan State University, peacefully passed away in his sleep December 22, 2000, following a heroic, year-long battle with cancer. Jerry was born February 9, 1946, in Minneapolis, Minnesota, where he received his primary and secondary school education. As an undergraduate, he attended Creighton University in Omaha, Nebraska, where he received his B.S. degree with Honors in Chemistry and where he was also a member of the varsity basketball team, playing on a National College Athletic Association scholarship. After graduation from Creighton, Jerry joined Kenneth Sauer's group at Berkeley as a doctoral student in 1968. He received his Ph.D. in 1973 and spent a year as a post-doctoral fellow in the Sauer group. In 1974, he joined Graham Palmer's laboratory at Rice University, where he began the research on cytochrome oxidase that was to later become a major part of his independent scientific career.

Jerry was recruited by the Chemistry Department at Michigan State University, where he joined the faculty as an assistant professor in 1976 and where he spent the rest of his career. He was promoted to associate professor with tenure in 1980 and to full professor in 1984; from 1990 to 1998, he was Chair of the Chemistry Department. In 1997, he received the highest honor his university can bestow, the title of University Distinguished Professor. When he arrived at Michigan State, Jerry set about establishing a first-rate research program, applying physical methods to the characterization of cytochrome oxidase and photosynthetic systems. In the mid 1980's, the Babcock lab identified key tyrosine residues associated with the oxygen evolving catalytic site in photosystem II using a combination of EPR spectroscopy and site-directed mutagenesis. This work led to a research program that sought to elucidate the function of paramagnetic centers in enzyme catalysis using EPR and ENDOR as the primary spectroscopic tools. A crowning achievement of this program was the proposal of a hydrogen atom abstraction mechanism for photosynthetic oxygen evolution that combined experimental results from many laboratories into a unified scheme. In addition to his work in magnetic resonance, Jerry was a pioneer in the application of time-resolved resonance Raman spectroscopy to the study of structure-function relationships in enzymes.

Jerry received a number of awards and honors in the course of his career. Among them was a distinguished faculty award from Michigan State University (1989), a Visiting Professorship at the College de France (1990), the Philips Lecture at Haverford College (1990), a Sigma Xi senior research award (1995), a Michigan Academic Governing Board Award (1999), and the Charles F. Kettering award for excellence in photosynthesis research, presented by the American Society of Plant Physiologists in 2000.

He was sought after as a member of federal advisory panels, and served in this capacity for a number of agencies, including USDA, NIH, and DOE. He was a member of several editorial boards including Photochemistry and Photobiology, Annual Reviews of Physical Chemistry, Biochimica Biophysica Acta- Reviews on Bioenergetics, Biochemistry, and the Journal of Biological Chemistry. He chaired the 1985 Gordon Research Conference on physicochemical aspects of photosynthesis. He was an invited speaker at numerous regional, national, and international meetings. It was not uncommon for Jerry to prepare the overheads for these talks the night before, in longhand, and many of us remember his posters at various meetings, which were often handwritten on brown paper that was in many instances derived from grocery bags. Although these professional activities consumed an enormous amount of time, Jerry was able to mentor 33 graduate students and 33 postdoctoral fellows. The research expertise of these students was divided about equally between photosynthetic and cytochrome oxidase research projects. He was also a gifted teacher in the classroom, something that was easily deduced from listening to one of Jerry's symposium presentations. It is significant that even when he had been promoted to the top faculty ranks, he continued to teach a course in introductory chemistry.

Jerry Babcock's life now seems like a "brief candle" to those who had the privilege to interact closely with him. Death has interrupted a career that was at one and the same time in a mature phase, allowing all to benefit from his wisdom, keen insight, and broad-based knowledge, and yet still moving in exciting new directions that were only beginning to bear fruit. At the time of his death, he had presented 293 invited lectures at scientific conferences around the world, and had already authored or co-authored 253 papers and reviews on his research. We will never know how much further Jerry's ever-inquiring mind and innovation would have taken him. What we do know is that our lives and fields of research profited immensely from Jerry's exceptional gifts and that we are all far richer for the time that we had with him. His many friends and colleagues worldwide will miss his gentle, giving nature.

John McCracken, East Lansing, Michigan

## Letter from the President - *continued from page 1*-

Thanks are due to Professor Hiro Ohya-Nichiguchi who has served as Regional Treasurer [Representative] for Japan for several years. Hiro has also been a Vice-President of the Society since October 1999. We thank him for keeping in touch with IES members from Japan and for his promotion of IES in Japan. I am pleased to announce that the new Regional Representative for Japan is to be Professor Shozo Tero-Kubota. Members in Japan may elect to make their dues payments to Professor Tero-Kubota or by credit card to the Treasurer, Dr Chris Felix, as outlined on the IES Web page.

Finally, we thank Professor Tengiz Sanadze from Tbilisi for another splendid set of medals for 2001.

**MEMBERSHIP & FINANCES**

With the support of the resolution of the General Meeting held last year, several months ago I have sent email reminders to those members in the West who were behind in dues payments. For

those who had not paid since 1998 or earlier, we provided an amnesty and required payment for 1999, 2000 and 2001 only. This has been quite effective and the Society's finances are clearly 'in the black' for the first time in many years. This is, however, not a cause for complacency, as we must pursue effective recruiting, including following up many of those whose names appear on our extended mailing list.

Once we have started to accumulate financial reserves we can begin developing some of the new initiatives foreshadowed previously, and to provide some paid help in the Office in the near future.

**CALL FOR NOMINATIONS FOR OFFICE BEARERS FROM 1 OCT 2002**

There is a call for nominations for Office Bearers in the previous EPR Newsletter. Before the deadline for nominations on 31 December next, the Executive will prepare a list of nominations for all positions. In addition at least ten members may make a nomination for any Executive position. Elections will be held in the event of there being more than one nomination for any position.

**VISITS MADE ON BEHALF OF THE SOCIETY**

Following the International EPR Symposium in Denver, I visited the Office at the University of Illinois on 3rd August to run through all of the Society's administration with Becky Gallivan. In particular I was able to see first hand the operation of the database. This was my first visit to the Office since November 1997 just after I had become Secretary and it highlighted the fact that face-to-face meetings are absolutely vital to the health and well-being of the Society. I was provided a set of address labels for the dues reminder letters the Treasurer, Chris Felix and I planned to send the following Monday [6th August] at the National Biomedical ESR Center in Milwaukee. Much of that day was spent in checking the names of those for dues follow up by letter.

Before returning home, on 27th August I paid a short visit to a laboratory in Europe to pursue a possible location for the IES Office from 1 Oct 2002. Regrettably, our colleagues there were unable to enter into a commitment at this time.

**ISMAR & ISMAR_2001**

Last July, Professor John Waugh, President of ISMAR, requested access to the IES mailing list of 4000 to assist ISMAR to reconstitute its membership base. However, as the Executive recognises the list to be an important resource we made it conditional on being able to negotiate a more formal role for our Society in relation to EPR at future ISMAR conferences. Our proposal was discussed by the ISMAR Council during ISMAR_2001 on the Island of Rhodes in late August but was rejected. The ISMAR Council does not wish to enter into formal relationships with other bodies as we proposed. During ISMAR_2001 I had several discussions with both John Waugh and the incoming President, Michael Mehring, and I believe our informal contact will continue to be fruitful.

It was gratifying that ISMAR_2001 had a much higher proportion of EPR presentations than ever before and, from memory, five out of about 12 Plenary Lectures were on EPR. Thanks are due to the Conference Chair, Professor Gil Navon, and to Professor Daniella Goldfarb for working hard to ensure a good EPR presence.

**PRESENTATION OF 2001 IES AWARDS**

The list of Award winners may be found on our Website and has been published in EPR Newsletter 12/1. Award presentations have occurred or been arranged as follows.

Professor Sandra Eaton presented the Young Investigator Award to Dr Mark Newton, Department of Physics, King's College London, at the 37th Royal Society of Chemistry ESR Group's Symposium in Bristol, UK last March. As medals had not been made at that stage, I visited King's College, London on 28th August and handed over his medal.

During the International EPR Symposium in Denver on 1st August, I presented this year's Silver Medal for Biology/Medicine to Professor Balaraman Kalyanaraman, Director of the Biophysics Research Institute, Medical College of Wisconsin, Milwaukee.

At ISMAR_2001, on 21st August, I presented this year's Gold Medal to Klaus Möbius, Free University of Berlin, the Silver Medal for Chemistry to Carlo Corvaja, University of Padua (shared with Prof Seigo Yamauchi) and the Silver Medal for Physics/Materials Science to Professor Gert Denninger, University of Stuttgart, at a special EPR Plenary Session. It was a great occasion and good that many of our NMR colleagues were able to witness three outstanding presentations that reflected the enormous and exciting diversity in current EPR research.

Professor Sandra Eaton presented the Silver Medal for Instrumentation to Dr Ted Walczak, Dartmouth College, during the 9th International Meeting and Workshop on EPR Studies of Viable Systems at Dartmouth held from 8-14 September.

During the Asia Pacific EPR Symposium (APES'01) in Kobe at the end of October, I will present the Silver Medal for Chemistry (shared award) to Prof. Siego Yamauchi from Tohoku University. At this point arrangements have yet to be made for presentation of IES Fellowship to Jim Bolton.

I want to thank those who made nominations for each of the awards and for the committees that worked so diligently to make the decisions.

**AWARDS FOR 2002 AND 2003**

Nominations for all annual IES Awards are due by November 15th of the previous year to allow plenty of time for the Committees to do their work. Committee Memberships will be updated between now and the year's end.

**GENERAL MEETING OF THE SOCIETY & MEETING OF SOME EXECUTIVE MEMBERS**

On behalf of the Society, I record our thanks to Professors Sandy and Gareth Eaton for making it possible for an IES General Meeting to take place on 31st July during the 24th International EPR Symposium in Denver. The Minutes are printed elsewhere in this issue.

Since four of the eight members of the Executive were in Denver for the EPR Symposium, several informal meetings took place involving Senior Vice-President [Sandra Eaton], Chris Felix [Treasurer], Linn Belford [Newsletter Editor] and myself. A major decision reached was to change the role of Regional Treasurers to that of Regional Representatives. Since an increasing number of members now pay dues directly by credit card, our preferred option is for that to continue and for the dues collection role of Regional Treasurers to be reduced in the West. In those regions where members pay dues of $5US per year, it will be necessary for the Regional Representatives to continue the Regional Treasurer role. However we look to our Regional Representatives throughout the world to assist with recruiting and supporting initiatives being considered by the Executive.

**CONCLUDING REMARKS**

I want to thank those many members who have so far responded to the reminder to pay their dues to help ensure a viable future for the Society. By the end of the year I hope we can advise all members of exciting developments for the future which we should be in a position to afford. Be assured, annual dues reminders will be sent late this year or early next year for 2002 dues, and in subsequent years. It will be our aim to have a very clear view of our financial position at the beginning of each year.

The Executive are continuing to pursue options for the location of the IES Office and administration from 1 October next year when new Office Bearers will take over.

John Pilbrow - President IES

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## *IES Awards Nominations —*

***annual deadline is 15th November***

Members should consider making nominations for IES awards. Confidential nominations for all awards are to be sent directly to the President, International EPR Society, Prof. John Pilbrow, School of Physics and Materials Engineering, Box 27 Monash University, Victoria, Australia 3800. The deadline for receiving nominations is November 15. Nominations arriving too late for current consideration may be held over for consideration in the following year. Nominations *must* include a draft citation of about 150 words highlighting the achievements of the nominee. If the nominee is selected to receive an award, a final version of the citation will be read at the award ceremony and printed in the *EPR Newsletter*. Send nominations in an envelope marked "Confidential: to be opened by addressee only." Alternatively, send nominations and accompanying citations as either an e-mail text message or a PC-readable attachment in RTF format to the following e-mail address:

**john.pilbrow@spme.monash.edu.au**

Although awards are not strictly restricted to IES members, the award committees may take membership into account when deciding on the award winners.

The ***IES Gold Medal***, ***Silver Medals***, ***Young Investigator Award***, and ***Fellows of the Society*** are described in the EPR Newsletter, Vol. 11 #3, 2000, and on our Website.

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### *Call for Nominations for Office Bearers for Oct 2002-Sept 2005*

Our Constitution [see Newsletter 10/2], Article VIII. Elections, reads: *"Nominations for all positions of Office Bearers shall be made by the Executive that shall have regard to geographical and international distribution of nominees. Nominations may also be made by at least ten paid-up members of the Society, in writing to the Secretary, and received by a date specified with appropriate notice in the official Bulletin or Newsletter of the SOCIETY. Where there are one or more nominations for any position, the Elections Committee shall conduct the election according to the provisions following in clauses 2 and 3."*

There are thus two ways a person may be nominated for Office in the Society. The current Executive is required to make nominations for all positions. Nominations can also be made by 'at least ten paid-up members of the Society..' for all elected positions – President, three Vice-Presidents, Secretary and Treasurer.

Nominations in writing should reach the ***Secretary, Professor Haim Levanon, Hebrew University of Jerusalem, Department of Physical Chemistry, Los Angeles Building, Rm 40 Givat-Ram, Jerusalem 91904, ISRAEL***, by 31st December 2001. **Email: levanon@chem.ch.huji.ac.il**

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### *EPR Newsletter – Associate Editor Sought*

We are calling for expressions of interest from members interested in becoming an Associate Editor of the EPR Newsletter. We need someone who will proactively seek out and edit news items and column material that is both interesting and high quality and will assist in timely publication. To complement Associate Editor Graham Timmins, we would prefer someone whose research interests are complementary to his and who is not located in the US. Expressions of interest should be sent promptly to the President, Professor John Pilbrow, School of Physics and Materials Engineering, Box 27 Monash University, Victoria, Australia 3800. Please include information regarding prior experience in editing similar materials and any other data considered relevant.

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## INTERNATIONAL EPR (ESR) SOCIETY GENERAL MEETING - *Report of the General Meeting of the Society held during the 23rd International EPR Symposium, Marriott Hotel, Denver August 1st 2001 at 5.15 pm.*

### Chair: Professor John R Pilbrow (President)

**AGENDA**

### 1. Apologies and Attendance.

The following 17 members were in attendance: John Pilbrow [President, in the Chair], Sandra Eaton [Senior Vice-President], Chris Felix [Treasurer], Linn Belford [Newsletter Editor], Gareth Eaton, Russell Le Brutto, Angel Di Bilio, Ron Mason, Guenter Maresch, Graeme Hanson, Boris Rakvin, Catherine Miller, Michel Geoffroy, Wolfgang Trommer, Matthias Weber, Howard Halpern, & Keith Madden.

### 2. Appointment of Minute Secretary.

Professor Keith Madden had agreed to act as minute secretary and was appointed on the voices.

### 3. Acceptance of report of General Meeting held on 1st Aug 2000.

The Report of the previous General Meeting held in Denver, August 2000, and published in EPR Newsletter 11/3 was accepted as a true record of the meeting; Moved Linn Belford, Seconded Gareth Eaton.

### 4. Matters arising from General Meeting not covered elsewhere. Nil.

### 5. Thanks

The President thanked all of the Office Bearers, members of Awards Committees and to Bruker [for covering cost of

distribution of Newsletter]. He particularly thanked Chris Felix as Treasurer and Linn Belford as Editor of the Newsletter for their efforts during the past year. He also thanked Becky Gallivan for providing so much support through the IES Office in Urbana.

**6. Reports**

**6.1 President [on behalf of the Executive]**

The President's report was distributed.

**6.1.1 Election of Office Bearers 2002 [call for nominations; advance notice]**

The President stated that a call for nominations for Office Bearers to take over from 1 Oct 2002, will be made in the next Newsletter 12/1. Nominations will close on 31 December, 2001.

**6.1.2 Planning & Timetable 2001-2002**

There was nothing to report at this stage.

**6.2 Financial Report [Treasurer, if present, or President to report]**

A summary financial statement for 1996-present, expenditure at the U of I 1996- and a first draft budget for 2002 were shown as overheads. The President reported that chasing up members behind in dues, and the amnesty waiving unpaid dues up to and including 1998, had been beneficial but that several hundred more for whom we do not have email addresses would receive a letter in the near future. He predicted that by the end of 2001 the Society should have several thousand dollars uncommitted funds as the basis for financial reserves ultimately equivalent of a full year's operation.

The dues situation was highlighted by the fact that only 36% of members in the 'West' paid dues for 2000. We extended the amnesty to 1999.

At this stage it is planned to send out dues notices for 2002 in November 2001 so that the bulk of funds will be in the hands of the Society by early in the new year.

With regard to the expenditure summary, the amount committed to salary for Marha Moore, who resigned in March 2000, was about $12,000 US per year. The question was asked whether a professional manager would cost more than this?

The draft budget provided for part-time help [$12,000], Newsletter [$5000 for printing], general office costs [ ~ $2000], travel scholarships [for p/g] ~ $5000 with total estimated expenditure $24,250. With expected dues income, surplus carry forward from 2001 and new members we should expect reserves of at least $10,000 by Oct 2002 when the new Officers take over.

**6.3 Newsletter [Linn Belford]**

Linn Belford reported that the secretary who had been employed until March 2000, Martha Moore, had done the Newsletter typography and that since then he and Becky Gallivan had taken over all of the tasks between them. Linn Belford said that producing the Newsletter with no assistance was burdensome. He proposed that an Associate Editor be sought to share the load. A more critical matter was that lately members have been providing too few articles of general interest. He called for members to submit substantive articles and said we also need someone to organize regular columns with 2-3 year lifetimes, as Art Schweiger did until recently in his "EPR Vignettes" column.

The President said that a call for expressions of interest in the position of Associate Editor would go out in the next Newsletter.

Linn Belford said that the public issue could be put on the IERC Website as a pdf file.

**6.4 Website [Linn Belford]**

This exists but more could be done. It was noted that the President of ISMAR had congratulated us on our Website in comparison with their lack of progress.

**7. IES Office - Current arrangements**

The President reported that the Executive are considering several options for moving the office from Oct 2002, in particular, professional management of dues collection and management of the database. A decision will need to be made by about April or May next year. Linn Belford indicated that dues collection should be in the hands of paid personnel or a professional organization, as it is a large task for any volunteer.

The meeting indicated support for professional management of dues and the database.

**8. General Issues**

**8.1 Recruitment of new members**

John Pilbrow indicated that there is an untapped source of new members through top level EPR publications by colleagues who are not members of IES. A letter of invitation will be developed.

He indicated the Exec members who had met over lunch had decided to put to the full Exec the proposition that Regional Treasurers should henceforth be termed Regional Representatives, with those in the West having less to do with dues collections [now that credit cards work well] but more with recruitment.

**8.2 Relationship with ISMAR**

The President of ISMAR had requested access to our full mailing list of about 4000 names and addresses to assist in the reconstruction of their membership base. The President explained that, with the support of the IES Executive, we had responded by saying we wanted to trade the list for a properly defined responsibility for EPR sections of future ISMAR Conferences. Failing that we would seek to negotiate a one-off fee. John Pilbrow pointed out that maintaining the database had contributed to IES nearly falling over financially. Nevertheless, he believed we had a responsibility to our membership to work with ISMAR to achieve a win-win outcome for both societies. It was noted that the one-off fee was judged less desirable than some control over the EPR section of ISMAR conferences.

Howard Halpern asked if ISMAR could contribute to our database maintenance. Ron Mason indicated that in his view ISMAR meetings are of little interest to IES Members. Linn Belford argued that we should try to increase the amount of EPR at ISMAR meetings.

Wolfgang Trommer asked, "What fraction of each ISMAR Conference is devoted to EPR?" John Pilbrow pointed that that at ISMAR_2001 we have a plenary session at which three of our medals will be presented. The organisers turned to us in 2000 for help and advice about plenary and invited lecturers for the EPR sessions. The outcomes for EPR at ISMAR 2001 are promising.

Wolfgang Trommer urged that we should cooperate and work together. John Pilbrow said we should cooperate, but maintain our own identity.

**8.3 Travel Awards for graduate students**

Not discussed due to lack of time.

**9. Any other business**

It was reported that there is a software database on the NIEHS servers. Linn Belford, asked if he could store source data in binary form on the IERC/IES server for retrieval by members of IES and others, said yes.

Some enthusiastic discussion concerned the desirability and feasibility of IES's establishing or facilitating an International Database of EMR spectra and spin-Hamiltonian parameters. There was no definitive conclusion.

The President thanked Keith Madden for taking the Minutes. Meeting closed at 6.01 pm.

John Pilbrow, President

## *THE COMPUTER CORNER*

*Edited by Keith P. Madden, Reef (Philip D., II) Morse, Graeme Hanson, Dave Duling & Richard Cammack*

The EPR Computer Corner is a frequent feature of the EPR Newsletter. It is managed and edited by:

| | |
|---|---|
| Keith Madden | (madden.1@nd.edu) |
| Reef (Philip. D., II) Morse | (reef@xenon.che.ilstu.edu) |
| Graeme Hanson | (graeme@cmr.uq.oz.au) |
| Dick Cammack | (richard.cammack@kcl.ac.uk) |
| Dave Duling | (sasdhd@unx.sas.com) |

Items for this column may be sent to any of the above authors. Submissions may be edited for publication.

********

### EPR LIST SERVER

The IERC maintains a list server at xenon.che.ilstu.edu. To subscribe, send the words "subscribe epr-list"(put in body of message not in subject line. On next line type end or majordomo will think your signature block is also a command.) to majordomo@xenon.che.ilstu.edu.

Reef Morse, the manager of the list, will get a message saying you want to subscribe. He will verify the legitimacy of this request (keeps spammers off the list), then OK it. Any questions should be sent to him at reef@xenon.che.ilstu.edu.

You can remove yourself from the list by sending the words "unsubscribe epr-list" from the SAME e-mail address that you used to subscribe. If you use a different computer, your name will not be removed. If for some reason you no longer have access to the same e-mail address, or your e-mail address has changed, send Reef the information about your FORMER address and ask him to remove it. This is appreciated as it makes maintaining the list much easier for him.

## *RETROSPECTION – David Halliday, EPR pioneer*

*Contributed by John A. Weil and R. Linn Belford*

All too often, we do not remember, and sadly do not credit, the pioneers who first paved scientific roads that we depend on today. Many of us remember the famous physics textbooks by Halliday and Resnick but few of us realized that in 1946 David Halliday and his student, Robert Cummerow, independently did what they thought to be the first "resonant paramagnetic absorption" (EPR) experiment, learning only later that year that Zavoisky in Kazan, Russia had just recently demonstrated the phenomenon. Prof. Halliday's group continued to work and publish in the field for a few years before turning to other pursuits. One of us (J.A.W.) located David Halliday, now living in Seattle, and asked for his memories of his part in the beginnings of EPR. Dr. Halliday kindly obliged and has given us permission to share these recollections with the readers of the EPR Newsletter. Here is his letter, followed by literature references to his early work. We think you will find it interesting.

"Dear John Weil

Thank you for inviting me to write to you about my early involvement with electron paramagnetic resonance. I'm glad to do so. Bear in mind, however, that the reminiscences of a 85-year-old investigator amount to nothing as far as the history of the subject is concerned. All that counts are the printed publications and other dated documents. With that caveat, my rambling reminiscences follow. Use them as you will.

I spent the war years at the MIT Radiation Lab, working on the development of radar. Shortly after I returned to the University of Pittsburgh in January of 1946 (as an Assistant Professor), I was asked to give a journal club talk on the nuclear spin resonance experiments of Purcell, which had recently appeared. While actually giving this talk it occurred to me that something similar might be done with atomic magnetic moments. I said nothing about it during the talk. A little thought afterwards showed me that the effects would occur in the microwave range, with which I was very familiar. Furthermore, the effect should be easier to detect than the nuclear effect because the magnetic moments (which enter into the signal strength calculation as the square) are so much greater. Finally, by good fortune my colleague Alexander Allen, who had also been at the Radiation Lab, brought with him on his return a room full of microwave gear. The possibilities were at hand.

My first two acts were:

(1) I submitted a proposal for financial support to the Office of Naval Research (ONR). A grant in the range $5000-$10000 was forthcoming.

(2) I wrote to my friend Robert L. Cummerow who, at the

Published at the Illinois EPR Research Center (IERC), Urbana, IL 61801, USA

outset of the war, had finished all of his requirements for a PhD degree at the University of Pittsburgh but had not submitted a thesis. I invited him to return to Pittsburgh and work with me on this project, as his thesis. He gladly accepted.

At that time Professor Allen was building a cyclotron at the University of Pittsburgh and our preliminary experiments were carried out with its huge magnet. Meanwhile, we designed and constructed a more suitable desktop magnet of our own. In those early post-war years, magnets and other research equipment could not be purchased off the shelf; there was, as yet, no shelf. For a microwave source we chose initially—not a magnetron or a reflex klystron—but an intermediate-frequency [2930 MHz = S-Band] oscillator used in radar receivers and called—because of its squat, tiered construction—a lighthouse tube. Only when our first results were well in hand did I hear (I think from Purcell) about Zavoisky's work. He first obtained a resonance peak in 1946: [E. Zavoisky, J. Phys. USSR, *Spin Magnetic Resonance in the Decimetre-Wave Region*, 10, 197-198 (1946)]. At that time, our departmental library did not subscribe to Soviet journals, either in Russian or in translation.

I recall giving a short preliminary report of our work at a meeting of the APS held, I believe, at George Washington University. [APS had not yet started meeting in hotels.] We also submitted a Letter to the Editor in which the priority of Zavoisky was fully acknowledged. Our final report appeared in due course.

One result for which Cummerow and I can perhaps claim priority is our absolute measurement of the imaginary part of the high-frequency susceptibility, which we reported in our paper of 1947. Earlier EPR measurements (I believe) reported only the relative absorption.

Some years later, some Japanese investigators measured the absolute absorption of the compounds that we had used. The agreement with our results was very good, with the exception of one of the five compounds that we studied. These investigators postulated that our results in this one case were flawed because water of hydration was not taken into account. They are probably correct; our samples were finely powdered and we gave no consideration to water of hydration. This paper appeared in 1954:

[H. Kumagai, I. Hayashi, K. Ono, H Abe, J. Shimada and H. Shono, *Absolute Values of Absorption Coefficients in Paramagnetic Resonance Absorption*, J. Phys. Soc. Jpn. **9**, 376-377 (1954)].

Later, I collaborated with another PhD student (the late John Wheatley) on an EPR experiment with a single crystal of copper sulfate. This resulted in a joint publication (perhaps an APS meeting report) with Wheatley, myself, and Professor Van Vleck.

Occasional notice has been taken of our work. The most complete report that I know about is "*Swords into Plowshares": Breaking New Ground with Radar Hardware and Technique in Physical Research after World War II*, by Paul Forman, Rev. Mod. Phys. **67**, 431 (1995).

I did no further work on EPR, being involved in text-book writing and, later, University administration.

David Halliday
Seattle, June 2001"

*Relevant Early Publications by David Halliday et al.*

R.L. Cummerow and D. Halliday, *Paramagnetic Losses in Two Manganous Salts*, Phys. Rev. **70**, 433 (1946).

R.L. Cummerow, D. Halliday and G.E. Moore, *Paramagnetic Resonance Absorption in Salts of the Iron Group*, Phys. Rev. **72**, 1233-1240 (1947). *

D. Halliday and J. Wheatley, *Paramagnetic Resonance Absorption in Chrome Alum*, Phys. Rev. **74**, 1712-1713 (1948).

D. Halliday and J. Wheatley, *Paramagnetic Resonance Absorption in Aqueous Solutions of Manganese Sulfate*, Phys. Rev. **74**, 1724 (1948).

J. Wheatley, D. Halliday and J.H. Van Vleck, *Paramagnetic Resonance Absorption Line Shapes for Single Crystals of* $CuSO_4 5H_2O$, Phys. Rev. **74**, 1211A (1948).

J. Wheatley and D. Halliday, *Paramagnetic Absorption in Single Crystals of Copper Sulfate Pentahydrate*, Phys. Rev. **75**, 1412-1415 (1949).

* Note the early and correct use herein of the symbol B rather than the incorrect H for the magnetic-field magnitude.

# *NOTICES of MEETINGS*

***ATTENTION***

*NOTICES AND UPDATES ABOUT SOME MEETINGS ARE NOT PRINTED IN THIS COLUMN IF THE INFORMATION ARRIVES TOO LATE OR IF SPACE IS LIMITED. BUT SUCH MEETINGS MAY BE ANNOUNCED ON THE EPR NEWSLETTER WEB SITE WITH LINKS TO DETAILED CONFERENCE INFORMATION WHERE POSSIBLE.*

*CONTACT IERC@UIUC.EDU TO HAVE YOUR MEETING ADDED-*
*http://ierc.scs.uiuc.edu/news.html*

**INTERNATIONAL SOCIETY OF MAGNETIC RESONANCE (ISMRM), Tenth Scientific Meeting & Exhibition, The Islands of Aloha, Honolulu, Hawaii, May 18-24, 2002.**

On behalf of the ISMRM Scientific Program Committee, you are invited to join us at our Tenth Scientific Meeting & Exhibition, in May 2002, on The Islands of Aloha, in Honolulu, Hawaii. Web: http://ismrm.org

**EPR Session at 47th JOINT ANNUAL MEETING OF THE GEOLOGICAL ASSOCIATION OF CANADA AND MINERALOGICAL ASSOCIATION OF CANADA (GAC-MAC), Saskatoon, Saskatchewan, Canada, 27-29 May 2002 .** [*NEW ANNOUNCEMENT*]

A special session on "Electron Paramagnetic Resonance Spectroscopy and Earth Science Research" will take place at the 47th Joint Annual Meeting of the Geological Association of Canada and Mineralogical Association of Canada (GAC-MAC), Saskatoon, Saskatchewan, Canada, 27-29 May 2002 .

**Organizers/contacts** at the University of Saskatchewan:
Prof. Yuanming Pan <yuanming.pan@usask.ca>
Prof. John A. Weil, <john.weil@usask.ca>

**Description:**

This session will be of interest to researchers using EPR in all aspects of Earth Sciences. Emphasis will be placed on the characterization of geological materials (e.g., minerals and their synthetic analogues, melts/glasses, clays, coals, petroleum, ground-water, archeological artifacts). Both oral and poster presentations are welcome. General information about the conference and other special sessions is available at: http://www.usask.ca/geology/sask2002/

## 16th EUROPEAN EXPERIMENTAL NUCLEAR MAGNETIC RESONANCE CONFERENCE, PRAGUE, Czech Republic, June 10 -15, 2002.

*[PREVIOUSLY ANNOUNCED IN NEWSLETTER]*

The conference homepage with the pertinent information regarding EENC-2002 is now posted on the Web address:

***http://www.icpf.cas.cz/eenc2002.***

## 10th INTERNATIONAL CONFERENCE ON "LUMINESCENCE AND ELECTRON SPIN RESONANCE DATING," University of Nevada-Reno, Reno, Nevada, U.S.A., 24-28 June 2002.

*[PREVIOUSLY ANNOUNCED IN NEWSLETTER]*

The Desert Research Institute invites you to the 10th International Conference on Luminescence and Electron Spin Resonance Dating (LED 2002). LED 2002 continues the series begun in 1978 in Oxford, U.K., and follows LED99 (Rome, 1999), and LED96 (Canberra, 1996).

LED 2002 will bring together experts from around the world in the field of trapped-electron dating (luminescence and electron spin resonance dating). The topics range from novel and original applications to the dating of heated and unheated Quaternary geological/geomorphological and archeological materials, through fundamental studies of the basic physical phenomena and related dosimetry, to advances in equipment technology. A few invited lectures will introduce the main topics. Both oral and poster presentations are planned.

### GENERAL INFORMATION

**Participants and Authors**: Persons interested in attending should fill out and return by e-mail the Reply-Card (on web site listed below). Early replies to this Announcement should be made as early as possible. An early return is essential to permit the planning of reservations of facilities and other logistical matters. There is no guarantee that late replies can be considered in this planning process. A final e-mail announcement will be sent by December, 2001. All interested persons can access information at the conference WEB site.

**Location**: The conference will be held on the campus of the Univ. of Nevada-Reno (UNR), located in the city of Reno, Nevada. Weather and climate information, as well as geographical, recreational and cultural information can be obtained at the Conference WEB address after mid-2001.

Reno is served by a modern and capacious airport, with direct (brief) flights to major U.S.A. west-coast cities (San Diego, Los Angeles, San Francisco, Portland, Seattle), and to several other U.S.A. cities, thereby facilitating convenient U.S.A. and international connecting flights. Reno is also about a 5-hour drive from the San Francisco area.

**Conference Fees:** Professionals, US$ 500; Students, US$ 270; Accompanying persons, (Reception, excursion, lunches and conference dinner)US$ 170. These fees will increase by at least 10% for late registrations. Registration deadlines will be stated in later announcements.

**Proceedings**: Proceedings of both oral and poster presentations may be eligible for peer-reviewed publication in the journals Quaternary Geochronology (QSR) and Radiation Measurements. The official language of the conference and proceedings is English.

**Accommodations**: Participants will be responsible for their own room reservations. A block of 125 hotel rooms has been reserved at the Circus Circus Hotel-Casino, about 5 blocks from the conference site. The special conference (LED 2002) rate is very economical at about US$40/room (single or double occupancy), and additional persons can share for an extra fee. The rooms are complete, self-contained with modern facilities. Please note that at least one person in each of these rooms must be 21 years or older. Visit the Circus-Circus WEB site for detailed information, and specify LED 2002 when making Email, telephone or FAX inquiries and reservations.

**Attendance Assistance**: We plan to obtain financial assistance from sponsors to provide a limited number of Conference-fee grants for qualified overseas students and U.S.A. students from outside of Nevada, who cannot obtain funding from their own laboratories/institutes/agencies.

**Scientific Organizing Committee**: Glenn Berger (Chair), Desert Research Institute; James Bischoff, U.S. Geological Survey; Rainer Grun, Australian National University; Michel Lamothe, University du Quebec, Montreal; Steve McKeever, University of Oklahoma; Jack Rink, McMaster University; Ann Wintle, University of Wales.

**Conference Secretary**: Ms. M. Jones, Division of Hydrological Sciences, Desert Research Institute, 2215 Raggio Parkway, Reno, NV 89512-1095, USA.

Email: **LED2002@dri.edu** , Website:

***http://www.dri.edu/DEES/LED2002/led2002-home.html***

## 7th INTERNATIONAL SYMPOSIUM ON SPIN TRAPPING , SPIN TRAPS, NITROXIDES AND NITRIC OXIDE, SPECTROSCOPY, CHEMISTRY AND FREE RADICAL BIOLOGY, The Carolina Inn, Chapel Hill, North Carolina, USA, July 7-11, 2002.

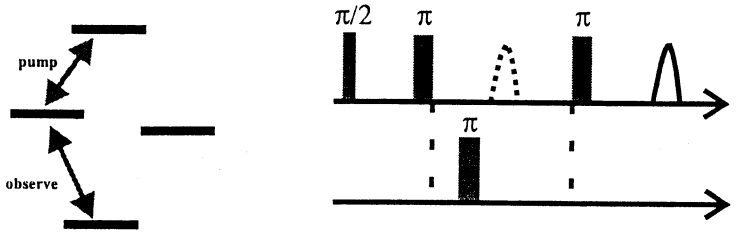
*[REVISED FROM PREVIOUS EPR NEWSLETTER]*

See also the Second Symposium Announcement, pages 4-5 of the previous Newsletter issue, Volume 12 No. 1, available on the following URL: ***http://ierc.scs.uiuc.edu/issue12-1.pdf***

# Are you interested in measuring distances up to 50 Å?

# The Bruker Pulse ELDOR Accessory makes it possible!

## Dead-Time Free DEER



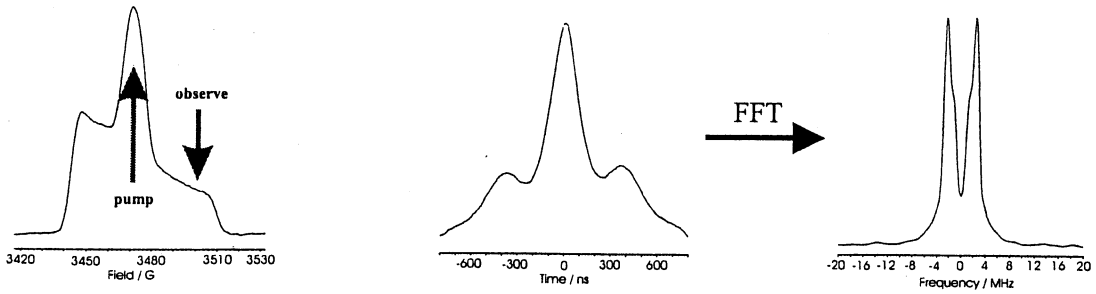

**Electron-Electron Spin Dipolar Interaction**

**Distance between Electron Spins**

ESE field swept spectrum

4 pulse DEER time domain signal

Dipolar spectrum with R = 28 Å




Reference: M. Pannier, S. Veit, A. Godt, G. Jeschke and H.W. Spiess, JMR 142, 331 -340, 2000
R.G. Larsen and D.J. Singel, J. Chem. Phys, 98 (7), 5134 - 5146, 1993

Sample: Nitroxide Biradical, courtesy Gunnar Jeschke

For further information, contact us at epr@bruker.de or epr@bruker.com

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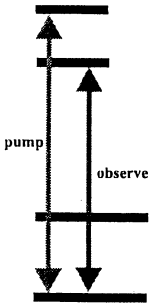
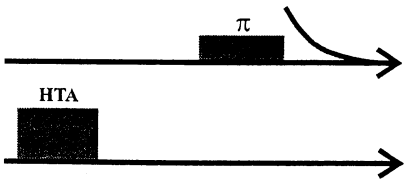
## *ELDOR detected NMR*



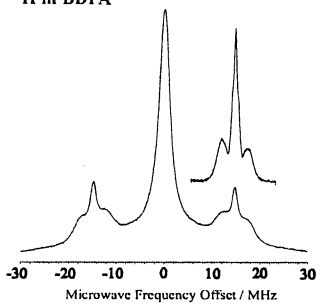




pump forbidden transition

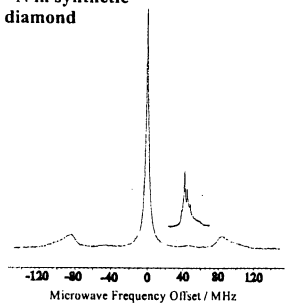
observe allowed transition

measures the NMR spectrum

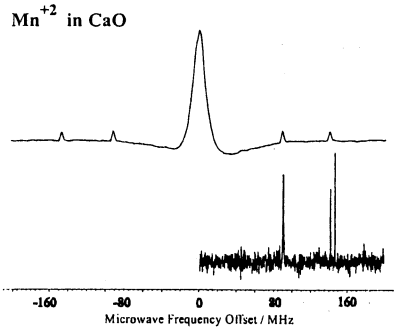
$^{1}$H in BDPA




$^{14}$N in synthetic diamond

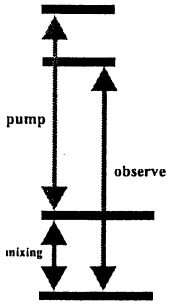


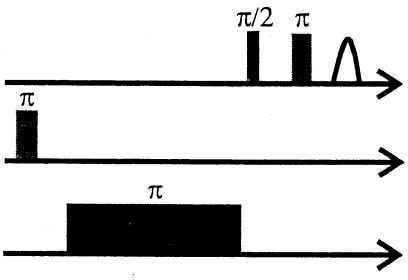

$Mn^{+2}$ in CaO




Reference: P. Schosseler, Th. Wacker and A. Schweiger, Chem. Phys. Lett. 224, 319-324, 1999

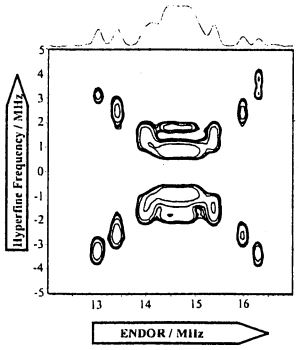
## Electron-Nuclear-Electron Triple Resonance



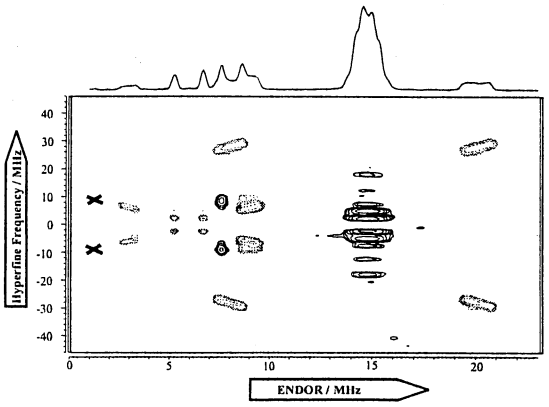




observe allowed transition 1
pump allowed transition 2
connect 1 and 2 by RF

measures Hyperfine Selective ENDOR




$^{1}$H in a malonic acid single crystal




$^{1}$H
$^{19}$P
$^{195}$Pt
in a powder vanadyl complex

Reference: H. Thomann and M. Bernardo, Chem Phys Lett, 169, 5 -11, 1990

The symposium program consists of 12 lectures, 36 oral presentations and 3 poster sessions on the following topics:

- Cellular Spin Trapping
- *In Situ* ESR
- *In Vivo* Spin Trapping
- Spin Trap Synthesis and Application
- Nitric Oxide Trap - Chemistry and Biology
- Nonionizing Radiation-Derived Free Radicals
- Novel Methods of Free Radical Trapping
- Nitroxide and Radical Trap Drugs
- Young Investigator Award Session

**The following distinguished scientists have been invited to present at the symposium:**

Phil Barker, BHP Steel and Coating (Australia); Neil Blough, University of Maryland (USA); Gary Buettner, Iowa State University (USA); Murali Cherukuri, NCI/NIH (USA); Colin Chignell, LPC/NIEHS/NIH (USA); Michael Davies, The Heart Research Institute (Australia); Bruce Gilbert, Univ. of York (UK); Joy Joseph, Medical College of Wisconsin (USA); Valerian Kagan, University of Pittsburgh (USA); Raman Kalyanaraman, Medical College of Wisconsin (USA), Hitoshi Kamada, Institute for Life Support Technology (Japan); Hiraoki Kosaka, Kagawa Medical University (Japan); Ching-San Lai, Medinox, Inc (USA); Robert London, NIEHS/NIH (USA); Kirk Maples, Centaur Pharmaceutical Inc. (USA); Jim Mitchell, NCI/NIH (USA); Donatella Pietraforte, Instituto Superiore de Sanita (Italy); Peter Riesz, NCI/NIH (USA); Cristina Rota, University of Modena (Italy); Decho Stoyanovsky, Mount Sinai School of Medicine (USA); Harold Swartz, Dartmouth College (USA); Paul Tordo, Universites d'Aix Marseille (France); Koichiro Tsuchiya, University of Tokushima (Japan); Anatoly Vanin, Russian Academy Sciences (Russia).

***Financial Support:***

Several young investigator awards will be granted to participants who have either not received or have received a Ph.D. within 5 years of the application deadline. Applicants who wish to be considered should register for the symposium and submit a letter to the committee that briefly outlines their scientific contributions along with an abstract, curriculum vitae, and a letter of recommendation from their advisor. The application deadline for the Young Investigator Award is December 21, 2001.

Travel funding may be awarded to some of the individuals who are selected for oral presentations. These travel awards will be chosen by the Advisory Board from abstracts submitted on or before December 21, 2001.

***Important Symposium Target Dates:***

- December 21, 2001 – Hotel reservations for guaranteed room.; Receipt of abstracts for oral presentation (registration mandatory); Receipt of applications for Young Investigator Award.
- April 1, 2002 – Authors notified of acceptance for oral presentations selected from the abstracts.
- June 7, 2002 – Final deadline for registration and poster abstract submission.

***Abstract Information***

Please check the symposium web site and/or contact Ms. Barbara Morse (contact information given below) for instructions on preparing abstracts and for up-to-date information on deadlines.

***Registration and Hotel Information:***

$400 for a Full Member; $300 for a Postdoc. or Student, $800 for a Vendor/exhibitor. (Vendors should contact the local organizing committee for details.)

The symposium hotel fee is $129/night for a single, $139/night for a double room and $300/night for a suite. A limited number of rooms at The Carolina Inn are reserved for the symposium.

Contact The Carolina Inn to reserve your room as soon as possible if you are planning to come. Please mention "*7th International Symposium on Spin Trapping*" to get the conference rate.

Contact information for The Carolina Inn is:
http://www.carolinainn.com/

The Carolina Inn,
211 Pittsboro Street,
Chapel Hill, NC 27516, USA
Tel: (800) 962-8519 Fax: (919) 962-3400.

Please register for the Symposium using contact information given below in order to receive the symposium materials that contain more information.

***International Advisory Board:***

Ohara Augusto (Sao Paulo, Brazil); Michael Davies (Sydney, Australia); Chris Rowlands (Cardiff, UK); Paul Tordo (Marseille, France); Raman Kalyanaraman (Milwaukee, USA); Harold Swartz (Hanover, USA); Aldo Tomasi (Modena, Italy); Toshikazu Yoshikawa (Kyoto, Japan)

***Local Organizing Committee:***

Ronald Mason, Colin Chignell, Maria Kadiiska, Yang Fann.

You may register online at the Official Symposium Web Site - **http://epr.niehs.nih.gov/spintrapping2002/.**

To request abstract, registration and meeting materials or for any inquiries on the symposium contact:

Ms. Barbara Morse
**LPC/NIEHS/NIH,** P.O. Box 12233, MD F1-03
111 TW Alexander Drive
Research Triangle Park, NC 27709, USA
Tel: (919) 541-3197; Fax: (919) 541-5737
E-mail: **morse@niehs.nih.gov**

**25th INTERNATIONAL EPR SYMPOSIUM at the 44th ROCKY MOUNTAIN CONFERENCE on ANALYTICAL CHEMISTRY, Denver, Colorado, July 28-August 1, 2002.** [*NEW NOTICE*]

The 25th International EPR Symposium will be held at the

Denver Marriott Hotel, Sunday, July 28 - Thurs. Aug. 1, 2002. Papers on all areas of EPR are welcome.

Contact for further information: Prof. Gareth and Sandra Eaton, Department of Chemistry and Biochemistry, University of Denver, 80208 USA, 303-871-3102, seaton@du.edu.

**5th MEETING OF THE EUROPEAN FEDERATION OF EPR GROUPS (EFEPR), Lisbon, Portugal, September 7-11, 2003. [NEW NOTICE]**

The fifth meeting of the **European Federation of EPR groups** will be held in Lisbon, Portugal, from Sunday, 7 September to Thursday 11 September 2003. The location will be the Conference Centre of Instituto Superior Técnico, a school of the Technical University of Lisbon.

This meeting will provide a forum for scientists engaged in EPR spectroscopy to present and discuss recent results and developments. The scope of the meeting will cover all aspects of EPR spectroscopy, including applications in the fields of physics, chemistry, materials, biology and medicine, new techniques, instrumentation developments and theory.

The official language of the conference will be English.

Key dates:

Pre-registration by 7 July, 2002.

Abstracts received by 7 June, 2003.

Hotel reservations - late 2002 or early 2003.

More information and the pre-registration form are available in the web page of the meeting:

http://dequim.ist.utl.pt/EFEPR

Organizing Committee: Bernardo Herold and João Paulo Telo, Instituto Superior Técnico, Portugal.

Scientific Committee: Daniella Goldfarb,Weizmann Institute of Science, Chair; Thomas Prisner, University of Frankfurt; Carlo Corvaja , University of Padova; João Paulo Telo, Instituto Superior Técnico.

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## FINAL CONFERENCE REPORT

### Report on the 7th International Workshop on Electron Magnetic Resonance of Disordered Systems EPR, held June 9-18, Sofia-Boyana, Bulgaria

The biennual meeting was organized by the Bulgarian EPR Society in collaboration with Institute of Catalysis, Bulgarian Academy of Sciences and Department of Chemistry, Sofia University. Representatives from 20 countries (Austria, Belgium, Croatia, Denmark, France, Germany, Greece, Israel, Italy, Japan, Norway, Poland, Romania, Russia, Saudi Arabia, Slovak Republic, Sweden, UK, USA and Bulgaria) attended.

The scientific program included lectures, posters and round-table discussions in two consecutive sections – Fundamental and Applied. The following lectures were delivered at:

**a. Fundamental section:** •K. K. Andersson, *High field/high frequency EPR studies of radical and metal ion sites in protein*; •L. Bonoldi, *An ESR study of Titanium-Silicalite in presence of $H_2O_2$.*; •D. Gourier, *The nature of 5f-ligand bonding in $U^V$ complexes using EPR and ENDOR spectroscopies in frozen solution.*; •G. Grammp, *Dimerization of organic radicals in solution.*; •J. S. Hwang, *EPR line shape and translational diffusion studies of a vanadium complex with acetone schiff base in toluene.*; •G. Jeschke, *Distance measurements in polymers on nanoscopic length scales.*; •M. Kadiiska, *Free radical-mediated toxicity of metals: An ESR in vivo spin-trapping investigation.*; •D. J. Lowe, *The Application of EPR and ENDOR to the Study of Xanthine Oxidase Family Enzymes.*; •D. M. Murphy, *Free Radical Processes in Heterogeneous Photocatalysis.*; •M. F. Ottaviani, *Characterization of solid surfaces of catalytic and analytical interest by adsorption of EPR probes.*; •B. Rakvin, *EPR study of amorphous silicon produced by ions implantation into silicon.*; •K. Ranguelova, *Influence of solute-solvent interactions on the self-redox reaction of bis(dithiophosphato)copper(II) complexes.*; •C. J. Rhodes, *Radicals in heterogeneous media; Formation and dynamics.*; U. Segre, *Intermolecular electron transfer in molecular aggregates studied by TR-EPR.*; •J. Telser, *EPR spectra from "EPR-Silent" species: High field and frequency EPR of integer spin transition metal complexes.*; •S. Tero-Kubota, *Time-resolved and Pulsed EPR Studies on the Lowest Excited Triplet States of Para-acenequinones.*; •Yu. D. Tsvetkov, *Pulsed ELDOR and its applications to spin labeled peptides.*; •A. M. Wasserman, *ESR spin probe study of molecular mobility and organization of some polymer micellar systems.*; •N. D. Yordanov, *Y2K+1. EMR in Bulgaria the last 40 years, present state and next 5 years. Studies in the field of structure reactivity.*

**b. Applied section:** •Y. Bassiakos, *ESR-dating of fossil seashells, characteristic of an Upper Pleistocene mediterranean paleoenvironment.*; •A. Blank, *Filling Factor in a Pulsed Electron Paramagnetic Resonance Experiment.*; •F. Callens, *Some Recent Multifrequency EPR Results on Systems Relevant for Dosimetry and Dating.*; •Y. Deligiannakis, *HYSCORE Spectroscopy of Tyrosine Radicals.*; •V. Gancheva, *Recent development in solid state/EPR dosimetry.*; •Th. Herrling, *SURF_ER-EPR of the surface domain of large objects.*; •A. Jezierski, *Quantitative EPR study on free radicals in the natural polyphenols interacting with metal ions and other environmental pollutants.*; •M. Mazur, *Error sources in Quantitative EPR spectroscopy.*; •M. A. Morsy, *Novel EPR Characterization of the Antioxidant Activity of Tea Leaves.*; •A. Lund, *New materials for ESR dosimetry.*; •J. A. Pedersen, *On the application of EPR in the study of naturally occurring quinones and quinols.*; •J. Raffi, *ESR of radicals induced in drugs and excipients by ionizing or mechanistical treatments.*; •H. Utsumi, *Application of in vivo ESR/spin-probe technique to oxidative diseases.*; •N. D. Yordanov, *Y2k+1. EMR in Bulgaria - the last 40 years, present state and next 5 years. Studies in the field of quantitative and applied EPR.*

**Poster presentations:**

**a. Fundamental section:** •M. A. Doicheva, B. G. Jeliazkova, *Solvent effect on the thermodynamics of ligand exchange between bis(dithiocarbamato)copper(II) and copper(II) salts. An EPR study.*; •B. G. Jeliazkova, A. Dimitrova, N. D. Yordanov, *Charge-transfer*

*photochemistry of the ternary complex(dithio-, diseleno-carbamato)copper(II).*; •D. Kattnig, G. Grampp, *Computer simulations of dynamic ENDOR-spectra in solution.*; •V. F. Tarasov, L. L. Yasina, M. D. E. Forbes, A. M. Wasserman, *The correlation between dynamic characteristics determined from ESR spectra of spin probes and spin correlated micelle confined radical pairs.*; •N. D. Yordanov, A. Dimitrova, *EPR and electronic spectral studies on some peculiarities in the formation of copper(II) mixed-chelate complexes.*; •N. D. Yordanov, A. Dimitrova, D. Rousanova, *EPR studies on some copper(II) chelates-solvent interactions*.

**b. Applied section:** • A. Engalytcheff, V. Deridder, R. Debuyst, B. Tilquin, *An EPR study of γ- irradiated beta-blockers.* •V. Gancheva, N. D. Yordanov, *EPR and UV spectroscopy study of table sugar as a high-dose dosimeter.*; •J. Raffi, T. Parrouffe, J. Kister, J. Lamontagne, L. Douifi, H. Masmoudi, *EPR study of consequences of different treatments upon bitumen.*; •J. Sadlo, G. Vanhaelewyn, P. Matthys, F. Callens, *A Comparative X and Q-band EPR study of radiation-induced radicals in tooth enamel and some model systems.*; •A. Stasko, V. Brezova, M. Mazur, F. Malik, *Free radical scavenging activities of wines and characterization of beer stability (EPR spin trapping study).*; •N. D. Yordanov, B. Mladenova, *X- and Q-band EPR studies on gamma-irradiated foodstuffs containing hard tissues.*; •N. D. Yordanov, B. Mladenova, P. Petkov, *Studies on the uncertainties in the quantitative EPR estimations due to the construction of the used cavities.*; •N. D. Yordanov, I. Naydenova, *Estimation of soot and PAH content in home dust by EPR spectrometry.*; •N. D. Yordanov, I. Naydenova, *Estimation of soot content in open air aerosols by EPR spectrometry.*; •N. D. Yordanov, G. Petkova, *Selective estimation of nitrate and nitrite ions in sausages and cheese with EPR spectrometry.*;

Two Round Table Discussions were organized: "EMR at the Frontier of XXI Century" (moderators: K. K. Andersson, G. Jeschke and J. Telser) and "Prospects of Applied EPR in the XXI Century" (moderators: Y. Bassiakos, Y. Deligiannakis, A. Jezierski, M. Mazur, N. D. Yordanov).

**The full text of all presented lectures as well as selection from the short original communications will be published as a special issue of *Spectrochimica Acta, Part (A)* in the beginning of 2002.**

All participants of the meeting were accommodated in a small hotel in the Vitosha mountains, about 10 km from downtown Sofia . Lectures and free evening discussions were held in the same place, facilitating comfortable extended professional contacts on an individual level.

The social program of each section included cocktail, farewell dinner in a traditional Bulgarian restaurant, half-day sightseeing tour in Sofia. Fundamental and Applied sessions were separated by a day's excursion to the Rila Monastery.

The next meeting in the series is scheduled for the year 2003. Address correspondence to:

N. D. Yordanov (Convener), V. Gancheva (Sci. Secretary), Institute of Catalysis, Bulgarian Academy of Sciences, 1113 Sofia, Bulgaria. ☎: (+3592) 979-2546 or 724-917; FAX: (+3592) 756-116. E-mail: emardis@ic.bas.bg or ndyepr@bas.bg OR ndyepr@ic.bas.bg.

# *POSITIONS AVAILABLE & WANTED*

## POSTDOCTORAL RESEARCH POSITIONS WITH ACERT AT CORNELL

Applications are invited for postdoctoral positions in the newly established NIH/NCRR National Biomedical Center for Advanced ESR Technology (ACERT) at Cornell University. ACERT is a collaborative research center aimed at the development and application of modern ESR techniques and instrumentation for the study of molecular structure and dynamics in biological systems, as well as providing service for the biologists working in this field.

Available positions will be in the following three research areas:

1) Development of High Field/High Frequency ESR. Experience in high frequency ESR, cw and pulsed and/or quasi-optical methods is highly desirable.

2) Experimental study of molecular structure and dynamics of biological systems by cw and pulsed ESR techniques. Background in biophysics, ESR of biological systems or in related field will be particularly useful.

3) Computer modeling of molecular structure and dynamics. Experience in ESR spectral simulations and proficiency in numerical methods is highly desirable.

Applicants should send a CV, list of publications, a description of research interests, and three letters of reference to Prof. Jack H. Freed, Cornell University, Baker Laboratory, Department of Chemistry and Chemical Biology, Ithaca, NY 14853-1301. Applications prepared in MS Word may be sent to jhf@ccmr.cornell.edu. Cornell University is an Equal Opportunity/Affirmative Action Employer.

## EPR RESEARCH SCIENTIST POSITION OPEN AT THE UNIVERSITY OF NEW MEXICO

An EPR research scientist position is available immediately at the University of New Mexico Health Sciences Center (UNMHSC) to investigate the role of free radicals in brain injury during cerebral ischemia and reperfusion, as well as to coordinate the various research activities at the UNMHSC EPR facility. The EPR facility has a range of capabilities, including conventional X-band, in vivo EPR spectroscopy at L-band, and in vivo EPR imaging of small animals. Individuals with extensive background in EPR spectroscopy and/or EPR imaging, as well as experience in the application of EPR to biomedical research, are invited to apply. The applicants should have a Ph.D. with a minimum of two years postdoctoral experience.

Please send curriculum vitae to:

Dr. Jim Liu, University of New Mexico, College of Pharmacy, Albuquerque, NM 87131, USA.

**E-mail: jliu@unm.edu** .

The University of New Mexico is an Equal Opportunity and Affirmative Action employer and educator.

**JUNIOR NMR SPECTROSCOPIST NEEDED--USAMRICD**

A junior NMR spectroscopist is needed at the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD), Aberdeen Proving Ground, MD. Position is only open to U.S. citizens. Qualified candidate must have a strong background in NMR spectroscopy. The successful candidate will provide guidance on the operation of a Varian 600 MHz INOVA NMR and will obtain liquid and solid-state NMR spectra to aid Principal Investigators in studying chemical warfare(CW) agents and pharmacological countermeasures for CW agents. As NMR administrator for the Institute, the candidate will be responsible for maintaining and troubleshooting the instrument, user training, and managing the instrument in areas of biochemistry, organic, inorganic, and protein chemistry.

Contact: Dr. Carmen M. Arroyo, USAMRICD, 3100 Ricketts Point Rd, APG, MD 21010. ☎: 410-436-4454 or E-mail: carmen.arroyo@amedd.army.mil.

**GRADUATE STUDENT OR POSTDOC POSITION AVAILABLE at NIJMEGEN FOR PHYSICIST or PHYSICAL CHEMIST FOR A PROJECT ON SOLID-STATE NMR USING MICRO COILS**

The Nijmegen SON Research (NSR) center and the Research Institute for Materials (RIM) are research schools based at the University of Nijmegen, The Netherlands. The objective of the collaborating schools is to design and synthesize new functional materials and study their structure and properties. NMR plays an important role in this research. Within the Physical Chemistry department / HF-NMR facility there is an opening for a graduate student (4 years) or a Postdoc (2.5 years) to develop solid-state NMR using MICRO COILS at high magnetic fields. The position is supported by a grant from the Dutch Foundation for Fundamental Research on Matter (FOM) and Philips Research Laboratories. In this project, in collaboration with the Philips Research Labs and the MESA Institute of the University of Twenty, high-frequency NMR detectors will be developed based on MICRO COILS (m scale). To optimize sensitivity, integration of rf-detection and pre-amplification is necessary. After implementation in regular NMR setups, it is aimed to apply these detectors at high magnetic fields up to 30 T, well beyond the strength of "conventional" NMR magnets. In this way a significant increase in the sensitivity and applicability should be obtained. Emphasis will be on the application of the detectors in materials science, e.g., in studying the molecular behavior of self-organizing nano-materials and the detection of quadrupolar nuclei in various functional materials.

The NMR center has excellent solid-state NMR facilities, including Chemagnetics CMX Infinity 300, 400 and 600 MHz spectrometers and a home-built 180 MHz spectrometer (www-solmr.sci.kun.nl /solmr/home.html). Access to a Varian Inova 800 will be realized in the course of this year. Furthermore there will be access to the magnets of the high magnet field laboratory.

**Requirements**: An enthusiastic researcher with a Master's or PhD degree in physics or physical chemistry, with a strong affinity for electronics development, who likes to work in an internationally oriented environment.

**Further Information**: Contact Prof. Dr. A..P.M. Kentgens (**e-mail arno@solidmr.kun.nl** / phone +31-24-3652078). Written applications, including curriculum vitae, summary of research interest and experience, should be directed to:

Prof. Dr. A.P.M. Kentgens, Dept. of Physical Chemistry / solid-state NMR, NSR Center, Toernooiveld 1, 6525 ED Nijmegen, The Netherlands

**POSTDOC POSITIONS AVAILABLE WITH THE NIEHS/NIH FREE RADICAL METABOLITE GROUP**

One or more post-doctoral positions in the biological ESR group are open immediately with a salary of $28,000 or more depending on experience. Health insurance is included. Studies of protein-derived tyrosyl and tryptophanyl radicals and of nitric oxide in humans are currently active. In vitro and in vivo investigations of free radical metabolites of toxic chemicals and drugs are also active. Individuals with a background in ESR or immunology are invited to apply. The applicant must have a Ph.D, or MD with less than five years of previous postdoctoral experience. Please send curriculum vitae to:

Dr. Ronald P. Mason
Laboratory of Pharmacology and Chemistry,
NIEHS/NIH, P.O. Box 12233,
MD F0-01 Research Triangle Park, NC 27709, US.

**MAGNETIC RESONANCE POSTDOCTORAL POSITIONS AVAILABLE IN EUROPEAN UNION**

For information on postdoctoral research opportunities in projects funded by European Union organizations, try the following internet web pages.

***http://www.uio.no/~kkan/EUTMR.htm*** and

***http://improving-rtn.sti.jrc.it/default/*** .

**POSTDOCTORAL POSITIONS IN EPR AVAILABLE**

One or two postdoctoral research positions are available in the EPR Laboratories of the North Carolina State University Chemistry Department (Raleigh, North Carolina, USA).

Research areas include:

(1) EPR instrumentation and, particularly, High Field/High Frequency time-domain EPR. A doctoral degree or equivalent in a relevant science or engineering field along with a strong interest and some experience in working with instrumentation related to EPR is desirable.

(2) Biophysical EPR, including site-directed mutagenesis and EPR spin labeling. A doctoral degree or equivalent in a relevant science or field such as chemistry, biochemistry, biophysics, or molecular biology with experience in biomolecular engineering and use of physical methods in biology is desirable.

Each applicant should furnish a complete Curriculum Vitae and have at least two letters of recommendation sent.

Interested individuals should contact Prof. Alex Smirnov or Prof. Tatyana Smirnova:

Prof. Alex I. Smirnov, **Alex_Smirnov@ncsu.edu**

Prof. Tatyana I. Smirnova, **Tatyana_Smirnova@ncsu.edu**

**GRADUATE SCHOLARSHIPS IN CHEMISTRY AVAILABLE AT THE UNIVERSITY OF ILLINOIS IN URBANA-CHAMPAIGN.**

Predoctoral Graduate Scholarships are available for highly qualified new applicants to the PhD program in the University of Illinois Department of Chemistry. Specialty areas in this department are Physical, Analytical, Organic, and Inorganic Chemistry as well as Materials Chemistry, Chemical Biology, and Chemical Physics. Magnetic resonance is one of the traditional strengths of our department. These Scholarships carry excellent full-year stipends and exemption from tuition and most fees. Graduate Scholars are guaranteed continued financial support until completion of the PhD degree as long as satisfactory progress toward the degree is maintained. Applicants whose native language is not English should take the TSE as well as TOEFL and GRE tests. I can provide information and application forms if you send me an e-mail at rbelford@uiuc.edu .

R. Linn Belford

## *BOOKS and JOURNALS*

**SPIN LABELING I & II *(Editor, L.J. Berliner)*.**

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Prof. Linn Belford in the IERC (rbelford@uiuc.edu) or check the IERC Web site (***http://ierc.scs.uiuc.edu***) for details.

**A SPECIAL ISSUE of Applied Magnetic Resonance (Vol. 21, Nos. 3-4 2001) on High-Field EPR in preparation for December 2001 publication.**

This double issue is prepared under guest editorship of Professor Möbius (FreeUniversity Berlin) and presents the state of the art in the High-Field/High-Frequency Electron Paramagnetic Resonance. The tentative list of contents is as follows:

"High-Field / High-Frequency EPR Spectrometer Operating in Pulsed and Continuous Wave Mode at 180 GHz"; M. Roarer, O. Brügmann, B. Kinzer, T. F. Prisner.

"Transfer Matrix Method for Optimizing Quasioptical EPR Cavities"; K. A. Earle, R. Zeng, and D. E. Budil.

"High-Frequency EPR: an Occasion for Revisiting Ligand Field Theory"; D. Gatteschi, L. Sorace, R. Sessoli, A. L. Barra.

"High-Frequency EPR Approach to the Electron Spin-Polarization Effects Observed in the Photosynthetic Reaction Centers"; O.G.Poluektov, L.M.Utschig, J.Tang, A.A.Dubinski, S.Schlesselman, M.C.Thurnauer .

"A D-band (130 GHz) EPR Study of the Primary Electron Donor Triplet State in Photosynthetic Reaction Centers of Rhodobacter sphaeroides R26"; S. V. Paschenko, P. Gast, and A. J. Hoff .

"A High-Field EPR Tour of Radicals in Photosystems I and II"; S. Un, P. Dorlet and A. W. Rutherford .

"High-Frequency EPR and ENDOR: Time Domain Spectroscopy of Ribonucleotide Reductase"; M. Bennati, J.A. Stubbe, R. G. Griffin .

"Assignment of EPR Transitions in a Manganese-Containing Lipoxygenase and Prediction of Local Structure"; B. J. Gaffney, C. Su and E. H. Oliw .

"On the mode of hexacoordinated NO-binding to myo- and hemoglobin: variable temperature EPR studies at multiple microwave frequencies"; Peter Paul Schmidt, Reinhard Kappl and Jürgen Hüttermann .

"High-Field EPR-Detected Shifts of Magnetic Tensor Components of Spin Label Side Chains"; C. Wegener A. Savitsky, M. Pfeiffer, K. Moebius, H.-J. Steinhoff

"Resolving Domains of Interdigitated Phospholipid Membranes with 95 GHz Spin Labeling EPR"; A.I. Smirnov, T.I. Smirnova .

"Spin-Label HF-EPR of Lipid Ordering in Cholesterol-Containing Membranes"; D. Kurad, G. Jeschke and D. Marsh .

"Excited Quartet and Doublet States in the Complex of Tetraphenylporphine Zinc(II) and a Nitroxide Radical in Solution: X- and W-band Time-Resolved EPR Studies"; J. Fujisawa, Y. Iwasaki, Y. Ohba, S. Yamauchi, N. Koga, S. Karasawa, M. Fuhs, K. Moebius, S. Weber.

"High-field EPR studies on polymer film formation from colloidal dispersions"; S. E. Cramer, C. Bauer, G. Jeschke, and H. W. Spiess.

"Pulsed EPR and ENDOR Investigation of Hydrogen Atoms in Silsequioxane Cages"; N. Weiden, M. Paech, K.-P. Dinse.

"High-Field ESR in the Metallic Fullerides RbC60 and $CsC_{60}$"; J. Rahmer, A. Grupp, M. Mehring.

"High-field EPR on the Cyclic Spin Cluster $Fe_6(tea)_6$"; B. Pilawa1, I. Keilhauer1, R. Bofinger1, D. Marinov, S. Knorr, A. Grupp .

"Estimation of higher-order magnetic spin interactions of Fe(III) and Gd(III) ions doped in a-alumina powder using multifrequency EPR."; A.Priem, P.J.M. van Bentum, W.R. Hagen, and E.J. Reijerse .

"Fourth-order zero-field splitting parameters of $[Mn(cyclam)Br_2]Br$ determined by single-crystal W-band EPR"; S. Mossin, M.Stefan, P. ter Heerdt, A. Bouwen, E. Goovaerts and H. Weihe.

"High-Frequency Tunable EPR Spectroscopy of Cr3+ in Synthetic Forsterite."; G. S. Shakurov, V. F. Tarasov .

"Extrinsic versus intrinsic high field - high frequency EPR properties of magnetic materials"; M. Martinelli, C. A. Massa, L. A. Pardi, I. Ricci, A.K. Hassan, A. Caneschi and L.- C. Brunel.

"High-Frequency EPR spectroscopy of Single-Molecule Magnets: a case study"; A.L. Barra .

"The g-Tensor Anisotropy of the Triplet State of the Primary Electron Donor in the Photosynthetic Bacterium Rhodobacter sphaeroides by High-Field (95 GHz) EPR"; A. Labahn and M. Huber.

Additional manuscripts are expected from the groups of Denninger (Stuttgart), J. Freed (Cornell), D. Goldfarb (Rehovot), G. and S. Eaton (Denver), W. Lubitz (Berlin), and J. Krzystek/L.-C. Brunel (Tallahassee).

The price for this double-issue will be US$ 345.50 plus carriage charges. Orders must be sent directly to Springer-Verlag Wien New York, Subscription Department, Sachsenplatz 4-6, A-1201 Vienna, Austria, FAX: 0043-1-330-24-26-62, email: journals@springer.at

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Email: ptm@rsic.iitm.ernet.in
Fax: 91 44 2350509 (or 2352545)

### EPR INSTRUMENT WANTED

We are searching for an EPR instrument in good working condition with variable temperature attachments. If you have such an instrument available, please contact us.

Contact information:
Dr. Horia Caldararu,
Romanian Academy, Institute of Physical Chemistry "I.G. Murgulescu," 77208 Bucharest, Romania, FAX: 40-1-3121147; E-mail: hcaldararu@chimfiz.icf.ro or hcaldararu@pcnet.pcnet.ro.

### WANTED: VARIAN X-BAND CAVITY

Varian multipurpose dual or single X-band cavity ( E 231 type or equivalent), wanted.

Contact information:
Dr. Pavel Cevc, Josef Stefan Institute
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fax .+ 386 61 126 3269, E-mail :Pavel.Cevc@ijs.si

### AVAILABLE: NITROXIDE RADICALS

A small collection of fairly well-preserved unique nitroxide radicals synthesized by Dr. L.A. Myshkina in the 1980's is now being made available:

- 2,6-bis(N-oxylo-tetramethyltetrahydropyrid-4-yl) thyophene.
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- 2,6-dimethylenecyclohexanone substituted by 6-(N-oxylo-tetramethyltetrahydropyrid-4-yl) thyen-2-yl residues at both alpha-carbon atoms.
- 4-chloro-4-nitro-TMP-N-oxyl.

Small quantities of the following also available:

- 4-bromo-4-nitro-TMP-N-oxyl and
- 1,4-di-TMP-butaine-bis-N-oxyl.

For information about obtaining any of the above compounds, contact A.E. Myshkin, Inst. Biochem. Phys., Russian Acad. Sci., Kosygin St. 4, 117977 Moscow V-344, Russia; NEW E-mail: Myshkin@photonics.ru

### AVAILABLE: ISOTOPE-CONTAINING SPIN PROBES

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For a catalog and price list of available compounds, contact Prof. Igor Grigor'ev, Inst. of Organic Chemistry, Novosibirsk 630090 Russia; E-mail: maxx@nioch.nsc.ru.

In the US, contact Dr. Sergei Dikanov, E-mail: dikanov@uiuc.edu

### FOR SALE - NMR MAGNETOMETER

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### WANTED: TERMINAL/MONITOR

We need a terminal/monitor for a Bruker ECS 106 spectrometer. Contact: Lon B. Knight, Jr.
Furman University, Department of Chemistry
Greenville, SC 29613, USA
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E-mail: lon.knight@furman.edu.

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