

epr news letter

2012
volume 21 number 4



The Publication of the International
EPR (ESR) Society



Officers of the International EPR (ESR) Society

PRESIDENT

Seigo Yamauchi

Institute of Multidisciplinary Research for
Advanced Materials (IMRAM),
Tohoku University,
Katahira-2-1-1,
Aobaku, Sendai 980-8577, Japan
phone: 81-22-217-5617, fax: 81-22-217-5616
e-mail: yamauchi@tagen.tohoku.ac.jp

VICE PRESIDENTS

Americas

Lawrence Berliner

Department of Chemistry and Biochemistry,
University of Denver,
2090 E. Iliff Ave, Denver, CO, OR 80208 USA
phone: 303-871-7476, fax: 303-871-2254
e-mail: berliner@du.edu
web: www.du.edu/chemistry/Faculty/lberliner.html

Asia-Pacific

Hitoshi Ohta

Molecular Photoscience Research Center,
Kobe University,
1-1 Rokkodai, Nada, Kobe 657-8501, Japan
phone: +81-78-803-5646, fax: +81-78-803-5770
e-mail: hohta@kobe-u.ac.jp

Europe

Klaus Möbius

Department of Physics,
Free University Berlin,
Arnimallee 14, Berlin 14195, Germany
phone: 49-30-838-52770
e-mail: moebius@physik.fu-berlin.de

SECRETARY

Sushil K. Misra

Concordia University,
1455 de Maisonneuve Boulevard West,
Montreal (Quebec), H3G 1M8, Canada
phone: 514-848-2424 ext. 3278, fax: 514-848-2828
e-mail: skmisra@alcor.concordia.ca
web: physics.concordia.ca/faculty/misra.php

TREASURER

Tatyana I. Smirnova

North Carolina State University,
Department of Chemistry,
Campus Box 8204, Raleigh, NC 27695-8204, USA
phone: (919) 513-4375, fax: (919) 513-7353
e-mail: tatyana_smirnova@ncsu.edu

IMMEDIATE PAST PRESIDENT

Jack H. Freed

Department of Chemistry and Chemical Biology,
Director of ACERT, B52 Baker Laboratory,
Cornell University,
Ithaca, NY 14853, USA
phone: 607-255-3647, fax: 607-255-0595
e-mail: jhf3@cornell.edu
web: www.acert.cornell.edu

FOUNDER PRESIDENT

Harold M. Swartz

Dartmouth Medical School,
Department of Radiology & EPR Center,
7785 Vail Room 702, Hanover, NH 03755-3863, USA
phone: 1-603-650-1955, fax: 1-603-650-1717
e-mail: harold.swartz@dartmouth.edu

Fellows of the International EPR (ESR) Society

Anatole Abragam (1914–2011)

John Michael Baker

Brebis Bleaney (1915–2006)

James R. Bolton

Harvey A. Buckmaster

Anders Ehrenberg

Gareth R. Eaton

Sandra S. Eaton

George Feher

George Fraenkel

Erwin Hahn

Karl Hausser (1919–2001)

Noboru Hirota

Clyde A. Hutchison, Jr. (1913–2005)

James S. Hyde

Lowell Kispert

Daniel Kivelson (1929–2003)

Melvin P. Klein (1921–2000)

Harry Kurreck

August H. Maki (1930–2008)

Bruce R. McGarvey

Keith A. McLauchlan

Klaus Möbius

Yuriy N. Molin

James R. Norris

John R. Pilbrow

Charles P. Poole, Jr.

Aleksandr M. Prokhorov (1916–2002)

Tengiz I. Sanadze (1930–2011)

Charles P. Slichter

Leslie H. Sutcliffe

Harold M. Swartz

Martyn C. R. Symons (1925–2002)

Yuri D. Tsvetkov

Joan H. van der Waals

George D. Watkins

John A. Weil (1929–2010)

Samuel I. Weissman (1912–2007)

David Whiffen (1922–2002)

Hans C. Wolf

epr
news
letter

www.epr-newsletter.ethz.ch

The official publication of the International EPR (ESR) Society is supported by the Society, by corporate and other donors, the Zavoisky Physical-Technical Institute of the Russian Academy of Sciences, Kazan, Russian Federation, and the Swiss Federal Institute of Technology, Zürich, Switzerland.

EDITOR

Laila V. Mosina

Zavoisky Physical-Technical Institute
Russian Academy of Sciences
Kazan, Russian Federation
mosina@kfti.knc.ru

ASSOCIATE EDITORS

Candice S. Klug

Medical College of Wisconsin
Milwaukee, WI, USA
candice@mcw.edu

Hitoshi Ohta

Molecular Photoscience Research Center,
Kobe University, Kobe, Japan
hohta@kobe-u.ac.jp

Thomas Prisner

Institute of Physical Chemistry, Frankfurt, Germany
prisner@chemie.uni-frankfurt.de

TECHNICAL EDITOR

Sergei M. Akhmin

Zavoisky Physical-Technical Institute
Russian Academy of Sciences
Kazan, Russian Federation
akhmin@kfti.knc.ru

FOUNDING EDITOR

R. Linn Belford

Illinois Research Center, University of Illinois
at Urbana, Urbana, IL, USA
rbelford@uiuc.edu

EDITORIAL OFFICE

Zavoisky Physical-Technical Institute
Russian Academy of Sciences
Sibirsky trakt 10/7, Kazan 420029
Russian Federation
phone: 7-843-2319096
fax: 7-843-2725075

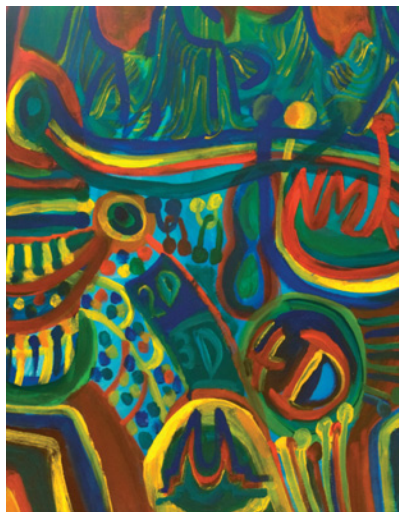
Please feel free to contact us with items (news, notices, technical notes, and comments) or ideas for the *EPR newsletter*.

The *EPR newsletter* is published quarterly by the International EPR (ESR) Society and is available in electronic and printed form to all members of the Society. The deadlines for submission of news for upcoming issues: Spring March, 15; Summer June, 15; Fall September, 15; Winter December, 15.

ISSN 1094-5571



PRINTING: LaPlume and Sons Printing, Inc.
One Farley Street, Lawrence MA 01843 USA
phone: (978) 683-1009, fax: (978) 683-4594



The cover picture illustrates aspects of the research carried out by Hans Wolfgang Spiess, recipient of the 2010 Zavoisky Award. He is mostly known for his work in multidimensional solid state NMR of polymers and supramolecular systems. He also developed four pulse DEER spectroscopy, widely applied today to determine the structure of biomacromolecules.

See also: www.youtube.com/watch?v=FbJh09A-uE0

The artwork is part of a painting by Rike Brunk-Spiess, Mainz.



ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

epr news letter

The Publication of the International EPR (ESR) Society

volume 21 number 4 2012

2 Editorial
by Laila Mosina

IES business

3 Letter of the President
by Seigo Yamauchi

4 New IES Executives

Awards

6 Kev M. Salikhov Elected as a Full Member of the Russian Academy of Sciences

7 The 2012 IES Awards to Glenn L. Millhauser, Aleksandr D. Milov and Laxman Mainali

7 Nominations Open for the Zavoisky Award 2012

Anniversaries

8 70th birthday of Lawrence J. Berliner
by Sushil K. Misra

9 70th birthday of Sushil K. Misra
by Charles P. Poole, Jr.

10 80th birthday of Eduard G. Rozantsev
by G. E. Zaikov, D. V. Loshadkin and O. A. Khanchich

In memoriam

12 Tengiz Sanadze (1930–2011)

by Alexander Shengelaya, Dimitry Daraselia, David Japaridze, Vadim A. Atsarkin, Boris I. Kochelaev, Aleksandr A. Manenkov, Anri A. Rukhadze, Kev M. Salikhov, and Maksut M. Zaripov

Conference reports

13 53rd Rocky Mountain Conference
by Reef Morse

14 EUROMAR 2011
by Thomas Prisner and Alistair J. Fielding

15 First Turkish Bruker Magnetic Resonance Workshop
by Ümit Akbey

16 International Conference "Spin Physics, Spin Chemistry and Spin Technology"
by Bernd Büchner, Kev M. Salikhov, Valery F. Tarasov, and Alistair J. Fielding

18 International Workshop "Advanced ESR Studies for New Frontiers in Biofunctional Spin Science and Technology" (AEBST 2011)
by Hitoshi Ohta

19

New EPR faculty

19

Market place

Editorial

Dear colleagues,

This issue introduces the new Executive of the IES (pp. 3–5) and starts with a letter from the President, Seigo Yamauchi, in which he outlines the main tasks of the IES. His kind words concerning the *EPR newsletter* give us inspiration to work hard on keeping the high standards of this publication.

Please note that the Executive introduced the following guidelines for the articles to be published in the Anniversaries column: (i) The Executive should agree with who is featured in the *EPR newsletter*; (ii) The anniversary date should be not lower than 65 years, the normal retirement age; (iii) There is no need to cover the same person for 65, 70, 75, etc. anniversaries. Please inform Prof. Sushil Misra, IES Secretary, of relevant articles.

The articles in the Anniversary column in this issue (pp. 8–10) meet these guidelines and

are arranged in the alphabetical order. We are glad to join the authors of these articles in congratulating Larry Berliner, Sushil Misra and Eduard Rozantsev on their birthdays. All the best to all of you! We also heartily congratulate Kev Salikhov, who was elected as a Full Member of the Russian Academy of Sciences (pp. 6 and 7).

We realize that item (iii) of the guidelines means that we stop with the “Five Years After” column. Yes, a newsletter is a live creature, some columns disappear and new ones appear. We stopped in 2006 with the “For Your Perusal” column edited by Arthur Schweiger, when he passed away, because it bore the touch of his fantastic personality which nobody could reproduce. In the same year we started a column “New EPR Faculty” edited by Candice Klug with an article on Gail Fanucci (16/2-3, p. 39) and we are happy that this column keeps running (e.g., see p. 19 for an article on Sharon Ruthstein). In 2010, we started a column “Guest of the Issue” with an article by Richard Ernst on the follies of

citation indices and academic ranking lists (20/1, pp. 10 and 11), which was continued in 2011 with an article by Peter Hore on animal detected magnetic resonance (21/1, pp. 2 and 3). Between-you-and-me-and-do-not-tell-anybody, Alex Müller is writing an article for this column on EPR in studying high-temperature superconductors! We hope to have it ready in a forthcoming issue of the *EPR newsletter*. In my feeling, it is great that interesting people are being involved in this activity and it would be great to have this column on a regular basis. And you know what? I have good news for you! Wolfgang Lubitz kindly agreed to edit this column in the future so we can all anticipate meeting with very interesting people. Keep your eyes open! And of course, don't forget to pay your dues if you have not already done so. Then you will continue to get the *EPR newsletter* and do not be egoistic, please invite your colleagues to join the IES as well.

Laila Mosina

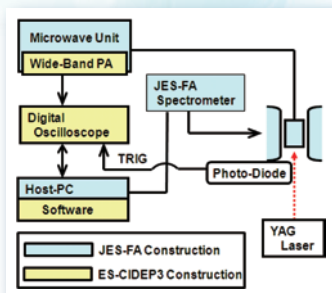
ES-CIDEP3 for JES-FA Series ESR

Chemically Induced Dynamic Electron Polarisation (CIDEP) facilitates sub-microsecond detection of spin-polarized paramagnetic intermediates as produced by laser excitation. This can yield unrivalled information on the spin dynamics and the chemical reaction.

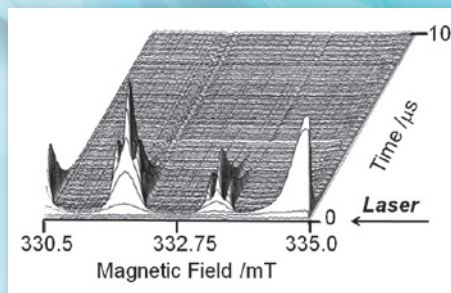
The high sensitivity and high speed of the JEOL FA series ESR spectrometers fitted with a CIDEP attachment ensures simple and reliable measurements.



JES-FA200



Block diagram of CIDEP attachment



2D TR-ESR of photo-polymerization process

JEOL
Serving Advanced Technology

JEOL Ltd.

1-2 Musashino 3-Chome Akishima Tokyo 196-8558 Japan
Sales Division Telephone: +81-42-528-3381 Facsimile: +81-42-528-3386

<http://www.jeol.com/>



Letter of the President

Dear Colleagues:

For basic science and applied research, EPR/ESR spectroscopy is becoming an increasingly important tool in a wide range of fields, from physics and chemistry to geology, biology, and medicine. So now is a time of tremendous opportunity for the International EPR (ESR) Society. IES will continue working to promote EPR and to foster scientific collaboration, and we will be making a renewed effort to expand our membership.

First, let me introduce the officers on the Executive Committee for the 2012–2014 term. I am Seigo Yamauchi (Tohoku University) and it is my great privilege to serve as President. The three Vice Presidents, who represent the Americas, Europe, and the Asia-Pacific region, respectively, are Lawrence J. Berliner (University of Denver), Klaus Möbius (Free University of Berlin), and Hitoshi Ohta (Kobe University). They will assist and advise me in all aspects of IES operations as we work to fulfill the Society's objectives. Two officers will continue to serve in their positions from the 2009–2011 term: the Secretary, Sushil K. Misra (Concordia University), and the Treasurer, Tatyana I. Smirnova (North Carolina State University). I am pleased that they will provide IES with their continued support. We are grateful to Jack Freed (Cornell University), the Immediate Past President, and we look forward to working with him in his new role on the Executive Committee.

Laila Mosina, the Editor-in-Chief of the *EPR newsletter*, continues to play a very important role in the EPR community. As you know, the newsletter connects IES members with other scientists and researchers throughout the EPR world, helping to establish close ties, both personal and professional. I thank Mosina-san, along with the Associate Editors – Candice S. Klug (Medical College of Wisconsin), Hitoshi Ohta, and Thomas Prisner (J.W. Goethe University Frankfurt) – and the Technical Editor, Sergei M. Akhmin (Zavoisky Physical-Technical Institute). Thanks to our editorial team, the *EPR newsletter* will no doubt continue to be a valuable asset to IES members.

Given the scope of EPR activities worldwide, I believe that the IES has a lot more room to grow in terms of due-paying members. Toward this end, we need to increase the visibility and appeal of the Society in order to attract new members. I know that the Executive Committee

has previously tried to tackle this problem; there is no easy solution, but we will keep working on it. One possible approach is to extend the areas of IES activities to East Asia, Southern Europe, and South America. Since the *EPR newsletter* keeps getting better and better, a good idea might be to distribute this newsletter to non-IES members. Doing so would be a good way of letting them know about the Society and encouraging them to join.

Attracting new members will be a central focus of the Executive Committee, and we welcome ideas from current members. How can we reach out to the broader EPR community? How can we attract new members from around the world and from the diverse fields where EPR is used? We look forward to hearing from you and working together to help the Society grow.

A key part of the Society's mission is honoring scientists for excellence in EPR research, particularly in the areas of Biology/Medicine; Chemistry, Physics/Materials Science; and Instrumentation. Most importantly, IES recognizes outstanding young researchers with the Young Investigator Award. Unfortunately, the number of nominations of excellent candidates has dropped in the last few years. The Executive Committee is now considering additional efforts to motivate senior research supervisors to nominate excellent young scientists for this award.

As member of IES, we are, not surprisingly, highly enthusiastic about EPR and the prospects for future development of the field. But we need to communicate and collaborate with scientists both inside and outside of the EPR field. How can we do this? A couple of ideas spring to mind. Senior scientists can take the opportunity to serve as Visiting Professors, and young scientists can get involved in scientific conferences and meetings. In these ways, EPR researchers can improve communication and initiate new collaboration with other laboratories. IES and the *EPR newsletter* are intended to help mediate the exchange of information about excellent laboratories and scientific meetings.

I am excited to work with members on the challenges mentioned above, and I hope that you will join us in the many events sponsored by IES for the EPR community.

Seigo Yamauchi



Seigo Yamauchi,
IES President

Seigo Yamauchi was born in 1948 in Aizuwakamatsu, Japan. He did his Ph. D. studies at Tohoku University with Professor Tohru Azumi on “Triplet Sublevel Properties of Aromatic Molecules by Zero-field ODMR” and obtained the degree in 1976. He spent two years at the University of Pittsburgh as a post-doctoral fellow in Professor David W. Pratt's laboratory and started ODESr experiments. In 1979 he joined the Chemistry Department at Kyoto University, working with Professor Noboru Hirota on time-resolved EPR studies in the photochemistry of organic molecules. In 1989, he moved to Sendai and is currently a Professor of Chemistry in the Institute of Multidisciplinary Research for Advanced Materials (IMRAM) at Tohoku University. His research interests are in the photo-physics and photochemistry of composite molecules, including metal complexes and bio-molecules, by means of highly time-resolved EPR and high frequency W-band time-resolved and pulsed EPR spectroscopy.

He was awarded several prizes: the IES Silver Medal for Chemistry in 2002, the Chemical Society of Japan Award for Creative Work in 2003, the Society of Electron Spin Science and Technology (SEST) Award in 2007, the Japanese Photochemistry Association Lectureship Award in 2010, and the Zavoisky Award in 2011.



Lawrence J. Berliner,
IES Vice-President Americas

Larry Berliner received a BS in Chemistry from the University of California, Los Angeles 1963. He earned a PhD in Physical Chemistry from Stanford University under Harden McConnell in 1967 and was a post-doc with David Phillips in the laboratory of Molecular Biophysics at Oxford University as well as an additional year at Stanford University with Harden McConnell in 1968 before joining the chemistry faculty of The Ohio State University, where he is now Professor Emeritus. In 2001 he moved to the University of Denver as chair of Chemistry and Biochemistry until late 2008, when he stepped down in order to devote more time to his research. He is also a member of University of Colorado Toxicology Graduate Program in the Dept. of Pharmaceutical Science.

His research interests include the development and use of spin labeling as a structural tool for understanding structure and function in biological systems as well as in vivo EPR of biological free radicals. He serves on the editorial and advisory boards of several journals and has chaired the Illinois and Dartmouth EPR centers. From 1975–1980, he held an Established Investigatorship from the American Heart Association. He is a Fellow of the American Chemical Society and the American Association for the Advancement of Science. He was awarded the IES Silver Medal for Biology/Medicine in 2000 and received a Lifetime Achievement Award in Biological EPR Spectroscopy from The Ohio State University at EPR-2005.



Hitoshi Ohta,
IES Vice-President Asia-Pacific

Hitoshi Ohta was awarded his B.Sc. from University of Tokyo, Japan, in 1982. He was accepted to the graduate program at Science University of Tokyo and earned M.Sc. degree in 1985. During his graduate program he was appointed as an Assistant Professor at Kobe University in 1987, and received the Doctor degree in Physics from Science University of Tokyo in 1989.

In Kobe he started his career in high field ESR using pulsed magnetic field, and became an Associate Professor in 1994. Since 2001 he holds a Full Professor position in the Molecular Photoscience Research Center, Kobe University. He has published more than 300 papers in scientific journals, and his research interest is focused on the development of multi-extreme high field ESR in THz region and its applications to the quantum spin systems.

Currently he serves as advisory board member of the *Applied Magnetic Resonance*, associate editor of the *EPR newsletter*, council member of Asia-Pacific EPR Society (APES), representative member of the Physical Society of Japan, board member of the Japan Society of Infrared Science and Technology. He is also a founding member of APES and the Society of Electron Spin Science and Technology (SEST), and he also served as President (2004–2008) and Vice-President (2001–2004) of APES, and President (2010–2011) and Vice-President (2008–2009) of SEST. In 2008 he received the IES Silver Medal for Instrumentation.



Klaus Möbius,
IES Vice-President Europe

Klaus Möbius was born in Berlin, Germany, in 1936. He graduated in Physics from the Free University (FU) Berlin in 1962, worked for three years in the AEG Research Institute in Berlin and received his Ph.D. from FU Berlin in Physics in 1965. There, he did his Habilitation in Experimental Physics in 1969. After a Postdoctoral year at the University of California at Riverside in the group of A. H. Maki, he accepted an Associate Professor position at the FU Berlin in 1971. In the Department of Physics he served as the Vice Dean 1991–1992 and as the Dean 1992–1993. In the years 1972 to 2005 he was the Subproject Director of research projects of his group in five Priority Project Areas of the Deutsche Forschungsgemeinschaft (DFG), the Volkswagen Foundation, and the European Science Foundation. From 1998 to 2006 he was Coordinator and Subproject Director of the DFG Research Priority Program “High-field EPR”. For the FU Berlin he served as Confidant Professor of DFG from 1983 to 1990. He was President of the European Federation of EPR Groups from 1991 to 1994. As well, he was the Vice-President of the International EPR (ESR) Society (IES) from 1996 to 1999. He has served on many journal editorial boards and was Guest Editor of five special issues of international journals.

He has been invited as a Visiting Professor at the Hebrew University of Jerusalem (Summer 1980), the Indian Institute of Technology (IIT) Madras (Winter 1983), the University of Padova (Winter 1997) and the Tohoku University, Sendai (Spring 2001). He has been an



Is your company involved in magnetic resonance in any way? If so, consider advertising in the *EPR newsletter*. Your company will have its own advertising and information box in each issue. It will be seen by a targeted audience of thousands of specially selected scientists worldwide. Information on sponsoring the Society and advertising is shown on this Web site: www.epr-newsletter.ethz.ch/corporate_sponsors.html

invited Fellow of the Institutes for Advanced Studies at the Hebrew University of Jerusalem (Winter 1990/91) and the University of Bologna (Winter 2009 and Winter 2010). For many years his group has been carrying on extensive experimental multi-resonance and multi-frequency EPR spectroscopy in conjunction with the development of advanced EPR instrumentation. Prominent examples are cw, time-resolved and pulsed EPR, ENDOR/TRIPLE, and PELDOR from X-band (9.4 GHz) to W-band (94 GHz) and 360 GHz. His applications comprise stable and photo-excited organic molecules in their doublet and triplet states, mainly selected from natural and artificial photosynthesis, both in fluid and solid matrices, to probe the structure-dynamics-function relationships of complex molecular aggregates.

His current research interest is focused on high-field EPR studies on disordered photosynthetic systems to reveal three-dimensional structures and electron distributions of conformational sub-states during protein action. For this to accomplish he is commuting between the FU Berlin and the Max-Planck Institute for Bioinorganic Chemistry in Mülheim (Ruhr), where he is a Guest Scientist since 2009.

He received numerous honors and awards for his academic activities, among them: the Bruker-Lecturer Award of the Royal Society of Chemistry (1987); the Max-Planck-Research Award (together with Haim Levanon) (1992); the Zavoisky Award (together with Yakov Lebedev) (1994); the Philip-Morris Research Award (together with Thomas Prisner and Martin Rohrer) (1996); the IES Silver Medal Award (1996); the AMPERE Award of the Groupement AMPERE (1998); the Roessler Lecturer Award of the Cornell University (2001); the IES Gold Medal Award (2001); Foreign Member of the Academy "Istituto Veneto di Scienze, Lettere ed Arti" in Venice (2002); the Voevodsky Award of the Russian Academy of Sciences, Siberian Branch (2006); the Cross of Merit (Verdienstkreuz 1. Klasse) of the Federal Republic of Germany (2006); Fellow of the International Society of Magnetic Resonance (ISMAR) (2009); Fellow of the International EPR (ESR) Society (2011). A Festschrift Issue of *Applied Magnetic Resonance* (vol. 30, no. 3-4, 2006) was jointly dedicated to him and to Kev Salikhov.



Sushil K. Misra,
IES Secretary

Sushil Misra has been a Full Professor of Physics at Concordia University, Montreal (Quebec), Canada, since 1977, having received his Ph. D. from Saint Louis University, USA in 1964. He spent sabbatical leaves at Harvard University, Paul Sabatier University (Toulouse, France), Technische Hogeschool (Delft, Holland), Monash University (Melbourne, Australia), Cornell University, Max-planck Institut (Muelheim, Germany), and University of Qieensland, Australia. He has done extensive experimental and theoretical research in the area of electron paramagnetic resonance (EPR), also known as ESR and EMR since 1975.

He has over 245 published research papers to his credit, including 15 review articles and 7 chapters in books. Continuing his service to the EPR community, he wrote a book entitled "Multi-frequency electron paramagnetic resonance: Theory and applications" published by VCH-Wiley in 2011, covering the latest state-of-the-art techniques.

Currently, he is a collaborator at the National Biomedical Center: Advanced Center for Electron Spin Research Technology (ACERT) at Cornell University. There, he has utilized the 170, and 250 GHz continuous wave EMR spectrometers, and has access to the 2D-ELDOR, DQC, and DEER spectrometers, as well as the facilities at the Cornell University Theory Center and CCMR Center, for his research. He was invited by the National High Magnetic Field Laboratory (NHMFL), Tallahassee, Florida as a collaborating visiting scientist to carry out measure-

ments on their VHF (very high frequency, >140 GHz) spectrometers (June 13–27, 2006). He has extensively collaborated with international researchers. During 1982–83 (9 months), and in 1989 (3 months), he visited Paul Sabatier University under Coopération France-Québec. In 1985, he was invited as a foreign expert by the Ministry of Education, People's Republic of China as one of the early EPR researchers to present a series of lectures on EPR, and to appraise the teaching and research at the Materials Science Center at Nanjing University.



Tatyana Smirnova,
IES Treasurer

Tatyana Smirnova received undergraduate Chemistry/Chemical Engineering Honors degree from the Lomonosov Institute of Fine Chemical Technology, Moscow, Russia in 1986. She was accepted to the graduate program at the University of Illinois at Urbana-Champaign in 1991 and earned a PhD in Chemistry under Prof. R. Linn Belford in 1997. She was awarded a NIH Postdoctoral Fellowship in 1997 and completed postdoctoral studies with Robert B. Clarkson at University of Illinois at Urbana-Champaign. Tatyana now is an Associate Professor at the North Carolina State University. Her research interests include the use and development of EPR spectroscopy, especially at high field/high frequency, as a tool to study fundamental roles of intermolecular interactions in biological self-assembly and structure-function relationship in multi component protein systems.

Are you interested to become a member of the International EPR (ESR) Society?
Please find the registration/information form for new/continuing members of the IES and
non-credit-card payment instructions for individual members on this Web site:
www.epr-newsletter.ethz.ch/contact.html



Kev M. Salikhov Elected as a Full Member of the Russian Academy of Sciences



EPR newsletter: *Dear Professor Salikhov, we know that in December 2011 you were elected as an academician of the Russian Academy of Sciences¹, the highest and most prestigious distinction for a scientist in Russia. 2011 was a very memorable year for you as you celebrated your 75th birthday and were granted the Honorary citizenship of the city of Kazan. On behalf of the readers of the EPR newsletter we congratulate you on these happy events. We are most appreciative that you agreed to answer the questions of this interview. Why did you start towards your career in science?*

It is a difficult question. In the Tatar village, where I was born, nobody before me studied at a University and I had no family prehistory in the scientific world. At the same time, my parents did their best to ensure that I got the best possible education at school. I finished the elementary school with teaching in Russian in the neighboring Russian village. Then my father took me to a nearby town where I continued my education in the town's best

high school. I had several outstanding teachers there, e.g., teachers of History, Mathematics, and German. Looking back, I think that they consciously prepared me for a scientific career. They taught me to get at the roots of things. When I finished the high school, Tatyana Konstantinovna Maksimova, my class teacher and teacher

of History, presented me her photo with an inscription: "There is no royal road to science, and only those who do not dread the fatiguing climb of its steep paths have a chance of gaining its luminous summits."² Now I realize that my teacher conjectured as early as 1954 that I could become a scientist.

The Physics Faculty of the Kazan State University (KSU) was a rather random choice. I came to the selection committee of the KSU and was going to write an application for the Mathematics Faculty. There I met by chance a former graduate of my high school. It turned out that she studied at the Mathematics Faculty. She told me that all boys go to the Physics Faculty. Thus I found myself there. I was fantastically lucky with teachers at school, lecturers at the university, in the post graduate course at the Institute of High-Molecular-Weight Compounds of the Academy of Sciences of the USSR (Leningrad) (IHMWC), colleagues at the Institute of Chemical Kinetics and Combustion of the Siberian Branch of the

Academy of Sciences of the USSR (ICKC) and Zavoisky Physical-Technical Institute of the Kazan Scientific Center of the Russian Academy of Sciences (ZPTI).

Who introduced you into magnetic resonance?

The same as many other researchers in Kazan, I was introduced into magnetic resonance by an outstanding scientist Professor Semen A. Altshuler. However, my way into magnetic resonance was not direct. My PhD dissertation was of no relevance to magnetic resonance, it was dedicated to studying polymers by ultrasound absorption and dielectric spectroscopy. Then fate has led me to Akademgorodok³, to the laboratory of academician Vladislav V. Voevodsky at ICKC. And I started studying problems of catalysis and radiation chemistry. At this time Anatoly S. Semenov and his colleagues designed a pulsed EPR spectrometer in our institute. Colleagues from the laboratory of Yuri D. Tsvetkov started to study the electron spin echo in a free radical system. They had met with theoretical problems, and I turned out to be involved in this project. My first contribution to EPR was as follows. My colleagues observed the electron spin echo signal in irradiated malonic acid but did not see the effect of the modulation of the echo decay envelope, though according to the theoretical work of Hahn, Mims and Rowan, this modulation should be observed. I understood what the matter was. In this theory it was considered that the microwave pulses forming the echo excite the whole EPR spectrum. This excitation of the spectrum under the conditions of experiments performed by my colleagues could not be implemented. We called this phenomenon "partial excitation". At present the term "selective excitation" is used in the literature. This work started my fruitful cooperation with the research group of Yuri D. Tsvetkov.

What would you have done differently given the chance?

I am happy with my life. I only regret that I did not manage to take a boat trip with my mother on the river Volga. For many years I wanted to do this, my mother did not travel and saw steamboats only in a movie. If there would have been a chance, I would not have postponed this trip with my mother.

Congratulation Letter to Kev Salikhov from the President of the IES

I am very pleased with the splendid news that you have been elected as a Full Member of the Russian Academy of Sciences. This is a great honor and I am happy to congratulate you on this election also on behalf of the International EPR Society.

Your election is certainly based on your excellent scientific research during the past decades, which is acknowledged worldwide. This has definitely advanced the field of magnetic resonance, particularly EPR.

I hope that EPR will enjoy even better prospects in the years to come owing to your election as an academician of the Russian Academy of Sciences.

With kind regards and best wishes for your future work,

Seigo Yamauchi

There were many situations, when my life could have gone along very different routes, I will name a few.

I was an active Komsomol⁴ member at the university. Lev Bazhanov, Secretary of the Komsomol committee of the university, was invited to move to Moscow to work in the All-Union Komsomol Committee in charge of youth affairs. Lev proposed that I should join him to work in Moscow. At that time I was already interested in scientific research and declined this offer.

I graduated from the KSU in 1959 and was sent to take a postgraduate course of the well-known scientist Mikhail V. Volkenshtein at the IHMWC (Leningrad). After finishing my postgraduate studies I had to return the KSU to the newly formed Chair of Polymer Physics. Thus I had a 100% chance, even a duty, to become a lecturer at the university. I refused to do this. Then I was sent to lecture at the Karaganda Polytechnic Institute in Kazakhstan. Within a year I managed to move to ICKC in Akademgorodok.

If I had returned to Kazan after the postgraduate course, I would not have had 25 years in Akademgorodok. In general, this would have been another fate.

I had to make a choice in the beginning of 1988 as well. At that time I was quite com-

fortable in Akademgorodok. I was doing interesting work with no complaints from my colleagues and management of the ICKC. Yuriy N. Molin, Yuri D. Tsvetkov, Renad Z. Sagdeev and I worked together on interesting scientific projects. Perestroika was in full swing in our country. Directors of the institutes of the Academy of Sciences of the USSR were elected on a competitive basis. Some of my Kazan friends invited me to take part in the elections of Director of the ZPTI. I had to make a choice. I chose this institute and this institute chose me.

I would like to note that in the end 1969 Semen A. Altshuler hinted that he would be interested that I join his Chair at the KSU. It is a pity that when I moved to Kazan in 1988, Semen A. Altshuler already passed away.

What is your message to the younger generation of the magnetic resonance researchers?

I wish them to enjoy their research and score big successes.

Endnotes:

¹ http://en.wikipedia.org/wiki/Russian_Academy_of_Sciences

² Karl Marx, Preface to the French edition of *Capital*, vol. 1: *A Critical Analysis of Capitalist Production*.

³ <http://en.wikipedia.org/wiki/Akademgorodok>

⁴ <http://en.wikipedia.org/wiki/Komsomol>

Nominations Open for the Zavoisky Award 2012

The Zavoisky Award 2012 will be presented at the Annual Symposium "Modern Development Magnetic Resonance" to take place in Kazan in September 2012.

This prestigious award is given in recognition of an outstanding contribution to the development of electron paramagnetic resonance. It is presented by the Kazan Zavoisky Physical-Technical Institute of the Russian Academy of Sciences, Kazan State University, the Republic of Tatarstan, and Springer-Verlag Wien New York. The lecture of the award-winner will be published in the journal *Applied Magnetic Resonance*.

Nominations are being sought from the EPR community worldwide. A brief presentation of the applicant covering 1–2 pages is expected. The final decision is made by the Award Selection Committee which comprises G. Feher (La Jolla), D. Gatteschi (Florence), H. M. McConnell (Stanford), K. A. McLauchlan (Oxford), K. Möbius (Berlin), and the chairman, K. M. Salikhov (Kazan). The selection of the Awardee is made after consultations with the Advisory Award Committee which comprises Yu. N. Molin (Novosibirsk), and Yu. D. Tsvetkov (Novosibirsk).

Nominations should be submitted to Dr. Laila V. Mosina
Executive Secretary of the Zavoisky Award Committee
Kazan Zavoisky Physical-Technical Institute of the Russian Academy of Sciences
Sibirsky trakt, 10/7
Kazan, 420029
Russian Federation
E-mail: mosina@kfti.knc.ru
Fax: 7-843-2725075
The deadline for submission of nominations is April 1, 2012.

The 2012 IES
Silver Medal for
Biology/Medicine

Glenn L. Millhauser

Department of
Chemistry &
Biochemistry,
University of Santa Cruz,
Santa Cruz CA
USA

The 2012 IES
Silver Medal for
Chemistry

Aleksandr D. Milov

Institute of Chemical
Kinetics and Combustion,
Russian Academy of
Sciences,
Novosibirsk
Russian Federation

The 2012 John-Weil
Young Investigator
Award

Laxman Mainali

Department of
Biophysics,
Medical College of
Wisconsin,
Milwaukee WI
USA

Serving the scientific community for special and one-of-a-kind jobs

We have experience in designing computer interfaces for older scientific instruments, spectral analysis and image reconstruction as well as mapping and graphic layouts. Contact us for your specific needs.

- Installation services
- Parts replacement service contracts

- Consulting and programming
- Consulting, training, and modification services
- Experience in a number of computer languages including C, C++, FORTRAN, BASIC and assembly

S³ Products for Spectroscopists

EWWIN - EPRWare for Windows
EPR data acquisition, manipulation and line shape analysis software for Windows.

SpecMan4EPR

Software for control of pulse spectrometers.

See what we can do for you, download trial versions of our software. Visit our website for details



**SCIENTIFIC
SOFTWARE SERVICES**

www.scientific-software.com



70th birthday of Lawrence J. Berliner

Dr. Lawrence J. Berliner reached his 70th year in September, 2011, which he celebrated with his wife and three children.

Larry, who was educated in California, received his B.S. in chemistry at U.C.L.A., then gained his PhD in (bio)physical chemistry as one of the first Stanford University graduate students under H. M. McConnell, who moved from Cal Tech. This era signaled the beginning of the spin labeling technique, where Larry was involved from the beginning to the current day. He was then recognized as the first British-American Heart Postdoctoral Fellowship sponsored jointly by the American Heart Association and British Heart Fund in 1967 to work in protein crystallography at the Laboratory of Molecular Biophysics at Oxford University under the tutelage of Sir David Phillips. After a second year as a Heart Fellow, back at Stanford, he joined The Ohio State University in 1969 as Assistant Professor of Chemistry. He was promoted to Full Professor in 1981 and then became Emeritus Professor in 2001, following a move to become Chair of the Department of Chemistry and Biochemistry at the University of Denver, where he is also an adjunct member of the University of Colorado Toxicology Graduate Program in the School of Pharmacy.

Larry is a biophysical chemist with interests in magnetic resonance studies of proteins and enzymes, in-vivo MR studies and free radical chemistry. He is well known in the EPR field for his contributions to spin labeling for over four decades, in addition for his ed-

ited book, "Spin Labeling: Theory and Applications" (Academic Press, 1976). The 'series' has resulted in four volumes, with a fifth planned in 2012. The first 1976 tattered volume remains today on many lab book shelves around the world, with the Russian translation 'selling' more volumes than the English version. He conceived

the series "Biological Magnetic Resonance" in 1979 with NMR pioneer Jacques Reuben, which is now in its 30th volume, and Larry now coordinates new volumes with guest coeditors. His work has covered proteolytic enzymes, including key coagulation proteins involved in thrombosis, protein-protein interactions in lactation and other key biological processes, in-vivo EPR on small animals and studies of free radical processes in mammalian systems.

Some accomplishments that Larry is best known for are his collaborative work with Kalman Hideg in developing the MTSL spin label, and first demonstrating in-vivo EPR imaging on a plant species and small animals. He was recognized with the 2000 IES Silver Medal in Biology and Medicine. Larry takes great pride in being inducted as a charter member of the IES as well as the Society of Magnetic Resonance in Medicine.

Larry has received numerous honors and awards, including Fellow of the American Association Advancement of Science, American Heart Association Established Investigatorship, NSF U.S.-Industrialized Countries Visiting Scientist at the University of Groningen, Holland, Lady Davis Visiting Professor, Technion (Israel Institute Technology, Haifa), Ministry of Education Visiting Professor, Kyushu University, Fukuoka, Japan, while a faculty member at The Ohio State University. He was further recognized, after his move to Denver, with the Lifetime Achievement Award in Biological EPR Spectroscopy at EPR 2005 in Columbus, Ohio, and as the only Fellow of the American Chemical Society at the University of Denver.

His other activities, particularly through the Council of Chemical Research and the American Chemical Society, are involved in educating and interacting with U.S. legisla-

tors about the importance of funding basic scientific research and training.

Since the EPR equipment and resources available at the University of Denver are not suitable for "in vivo" work, he maintains his connections with the premier laboratories at Ohio State, NIH and nearby state-of-the-art labs in the region. His goal, after stepping down as Chair in late 2008, was learning and pursuing new biological EPR and biophysical problems. Hence, his most recent sabbatical was spent as a Max Planck Visiting Professor with Wolfgang Lubitz at the Institute of Bioinorganic Chemistry in Mülheim, and the Free University of Berlin with Robert Bittl. He spent the last two summers working on proteins involved in neurodegenerative diseases as Wenner-Gren Senior Research Scholar at Umea University in Sweden with Ludmilla Morozova-Roche, spending a great deal of his time mentoring young scientists on career decisions and aspirations.

For those who know him personally, Larry is a charming and friendly person, who sees the world in a bigger perspective. In fact, he has a vast array of friends around the world and has made a point of spending his numerous sabbaticals 'away from the North American continent'. Although I reside on that continent, my first meeting with Larry was in Rio de Janeiro at the International Conference of Magnetic Resonance in Biology and Medicine in 1985, where he was an invited plenary speaker: we spent several days discussing science and philosophy on Ipanema beach.

While Larry has more than once concluded that spin labeling had run its course and had reached a dead-end, yet he admits that spin labeling continues to flourish and has probably met a renaissance in the 2000s with site directed spin labeling approaches and the many new techniques that colleagues in high field EPR have developed. He recently summarized his perspective of the history of spin labeling and in-vivo EPR in a festschrift issue of the *European Biophysics Journal* (2010) honoring his longtime friend and colleague, Marcus Hemminga.

Over the past 5 years, he has organized an environmental science course for University of Denver undergraduates in Thailand. We look forward to Larry's ongoing passion for contributions to science and society.

Happy 70th birthday, Larry!

Sushil Misra,
Professor of Physics, Concordia University,
Secretary, IES,
Montreal, Quebec, Canada



70th birthday of Sushil K. Misra

I am invited to write about my colleague of many years, Prof. Sushil K. Misra, on the occasion of his 70th birthday. His contributions to Condensed Matter Physics in general and to EPR in particular have been simply phenomenal. In addition, he is a very sociable person. I came to know him in the mid-70s when he invited me to give a seminar in Montreal. Then, during the 80s when I founded the *Magnetic Resonance Review* Sushil submitted a few review articles for publication, and he invited me to serve as an external thesis examiner for one of his doctoral students. We got to know each other much better when meeting later at several international conferences. I was so impressed by his writing that I invited him to write several chapters for volume 2 of the “ESR Handbook”.

Sushil was born in Badaun (U.P.) India in September 1940. He is the proud father of three children (two daughters and one son; two are medical doctors, and the third is presently studying medicine). After completing his Master of Science degree in Physics there in 1960 he came to the United States in the fall of 1961 to work on his doctorate in Condensed Matter Physics at Saint Louis University, completing it in 1964. After joining Concordia University in Montreal, Quebec, Canada in 1967, he continued his academic career by teaching, directing graduate students as well as post-doctorate fellows, and conducting research, building his EPR laboratory from scratch. He was subsequently promoted to the rank of full professor in 1977. His sabbatical leaves at Harvard University, Paul Sabatier University in Toulouse, France, The Technische Hogeshule in

Delft, Holland, Monash University in Melbourne, Australia, Cornell University, the Max Planck Institute für Bioanorganische Chemie in Mülheim, Germany, and at the University of Queensland, Australia, led to very productive future mutual research endeavors. His collaboration with Professor Jack Freed at Cornell has been especially fruitful.

He has frequently been invited as a specialist to present lectures at international conferences, and has extensively collaborated with international researchers. In 1985 he was among the few early EPR researchers to be invited as a foreign expert by the Ministry of Education of the People's Republic of China to present a series of lectures on EPR, and to appraise the teaching and research at the Materials Science Center of Nanjing University.

In 2004 Sushil was honored by the Canadian NSERC for having received continuous funding for a period of 25 years, a noteworthy achievement. He is a collaborator at the National Biomedical Center of Cornell University, and in 2006 he was invited by the National High Magnetic Field Laboratory at Tallahassee, Florida, as a collaborating visiting scientist to carry out measurements on their unique very high frequency spectrometers. He served as an external examiner on doctoral theses from France, Australia, Canada, and India. I was particularly honored to have him participate in the SPIN03 conference held in 2003 in Columbia, SC to commemorate the anniversaries of Prof. Horacio A. Farach and myself.

During his career Professor Misra supervised a number of the doctoral and master of science theses, and in addition he directed the research of a dozen post-doctoral fellows. To date, he has also been serving as Secretary of the IES International EPR/ESR Society for several years, which is one of the main executive positions that keeps the Society running smoothly. His conscientious and dedicated service has been commended by several officers of the Society.

At the present time Sushil is working on several experimental and theoretical research projects in collaboration with Concordia students and international experts. These

endeavors include EPR carried out at various frequencies and combinations of frequencies. The projects involve pulsed EPR (2D-ELDOR – electron-electron double resonance and DQC – double quantum coherence for distance determinations in biological systems), as well as multifrequency continuous wave EPR (phase transitions; high- T_c superconductors, metalloproteins, and nano-systems in ceramics). He has exploited the Monte-Carlo technique to better understand magnetic resonance phenomena, as well as sophisticated simulation and fitting procedures to unravel the spectra of transition metal ions in single crystals and disordered systems.

Sushil has published about two hundred and fifty research articles in refereed journals. Seven of these were chapters in books, and over a dozen were review articles on various topics in magnetic resonance, mostly written by invitation from the editor of the respective publication, such as the *Magnetic Resonance Review*. His reviews made available to researchers the then state of knowledge of transition metal ions in EPR settings. He plans to update this information in the near future. Last year he edited and published the book “Multifrequency Electron Paramagnetic Resonance” with the subtitle “Theory and Applications” which I am sure will become and remain the definitive work on the subject for many decades to come. It very thoroughly covers all of the theoretical and experimental material that any researcher must know about the subject, and in addition it provides very clear introductions to the various topics that newcomers to the field need to master. The various chapters have selected “Pertinent References” to background material for the topics in the chapter, as well as extensive ordinary “References” to the particular works that are cited in the chapter. The fourteen page long index makes it very easy to locate information on various topics of interest to the reader. Sixty two percent of the 26 chapters of this 1,022 page tome were either written (11) or coauthored (5) by Sushil himself, which is indeed a monumental accomplishment on his part! Overall, his output has been phenomenal in quantity, quality and originality.

His main accomplishments in EPR can be summarized as (i) rigorous evaluation of spin-Hamiltonian parameters from CW EPR spectra using least-squares fitting with exact diagonalization of the spin-Hamiltonian matrix; (ii) simulation of slow-motion CW EPR spectra in a liquid of an electron spin coupled to two nuclei by solving the Stochastic-Liouville equation following the

algorithm developed by Schneider and Freed; (iii) rigorous simulation of a six pulse DQC spectrum for distance measurements using matrix diagonalization; and (iv) the study of nano systems in ceramics by EPR. His present research includes, among others, (i) calculation of the 2D-ELDOR spectrum of a bilabel nitroxide system for distance deter-

minations in a liquid at ambient temperature, (ii) magnetic characterization of probes for use as MRI and EPRI contrast agents, magnetic ruler and quantum cubits, (iii) Multi-frequency CW EMR of active sites in (a) single crystals and (b) amorphous materials.

Sushil has the reputation of being one of the main research scientists in the field of

EPR/ESR in the world, and is well known in the international EPR community. We salute him on his 70th birthday for having achieved this status. We look forward to many more accomplishments from him in the years ahead!

Charles P. Poole, Jr.



80th birthday of Eduard G. Rozantsev

Professor Eduard Grigori'evich Rozantsev, who reached the venerable age of eighty in August, 2011, may be considered by common consent as the dean of stable free radical chemistry in Russia and in the world. In the words of his prominent colleague, L. J. Berliner, who dedicated to him and H. M. McConnell his book "Spin Labeling. The Next Millennium": "whose foresight ...brought the world the broad leadership that guided this technique to where it is today".

Rozantsev was educated at the Moscow State University where he eventually obtained his PhD in the laboratory of U. K. Yuriev. The list of youthful investigators in Yuriev's laboratory, which "now reads like a membership list of the Russian Academy of Sciences", is well-enough known not to require mention here.

On gaining his doctorate, Rozantsev worked in the Institute of Chemical Physics in Moscow where he was awarded a Doctor of Sciences degree at the age of 34 which he defended

before I. L. Knunyants, N. M. Emanuel and B. M. Mikhaylov. It was here that he made his epoch-making contributions to the chemistry of free radicals: first, through synthesis of new stable free radicals and, finally, paradoxical non-radical reactions of free radicals. The principles laid down by Rozantsev concerning non-radical reactions of free radicals served as the foundation for the numerous investigations that were to follow. Rozantsev not only developed, but discovered, this field of chemistry for modern science. He had this to say about the problem of stability of free radicals. "I am convinced that there is no need to treat the paramagnetic compounds that do not exist in a chemically pure state as stable substances indeed."

His more than 300 scientific papers were published in numerous scientific journals. Almost half of them deal with the free radical chemistry (*Doklady Akademii Nauk; Russian Chemical Bulletin; Nature; Tetrahedron; Synthesis; J. Chem. Res.; Mol. Phys.; Oxidation Com.*). The list of Rozantsev's collected scientific papers is published in *Mendeleev Chemistry Journal* v. XLIII, no. 6. 1999.

Administrative duties in the Institute of Chemical Physics soon interrupted his scientific work, leading to his decision to accept an offer from the Rector of Moscow State University of Applied Biotechnology (MSUAB) to become Head of the Department of Biochemistry, a position he has occupied since 1979.

In the late eighties he was also called to head the Department of Polymers and to direct the activities of the Laboratory of Polymers (one of the largest laboratories in the country). These positions he held for twenty five years, and under his direction the Research Chemical Department of MSUAB has become recognized as a leading experimental centre dealing with problems of polymer materials for industry.

Prof. Rozantsev is the author of several text-books which are widely used throughout Russia. Always keenly interested in students, his patience in assisting them to solve their problems, and his sound advice in shaping

their careers mean that his influence over young people will persist.

As Edwin Markham so admirably expressed it,

We all are blind until we see
That in the human plan
Nothing is worth the making if
It does not make a man.

Prof. Rozantsev's interests extend to literary culture and style, general scholarship with a sound intellect. The results of his work will well stand the tests of time. He is an eminent teacher and researcher and in the application of chemical science to practical outcomes.

To a few he directly reveals his philosophical bent. Others have appreciated this from his lectures and his conversation. Practical results of this interest are seen in some of his informal essays, in annotations in his books, his lectures, and in conferences with students in discussing their problems. Prof. Rozantsev sums up his life in these words: "It absolutely does not matter what I did to make progress, but more important for me that I live for people!"

Prof. Rozantsev celebrated his jubilee in good intellectual and physical form. He continues to be active as the Head of the Department of Biochemistry in MSUAB. He does not believe in retirement while there is work still to be done.

For his service as a teacher, scientist and for the personal qualities that have endeared him to all, colleagues of Russian Academy of Science and the Chair of Biochemistry in MSUAB are all enduringly grateful. They express their great admiration, appreciation and affection and wish him throughout the remainder of his years, continued usefulness, and the comfort and happiness he so richly deserves.

Professor Eduard Grigori'evich Rozantsev remains full of energy and new scientific ideas for applications.

Russian scientists join in congratulating him and to wish him a long and healthy life.

G. E. Zaikov,
D. V. Loshadkin,
O. A. Khanchich

Model 8400 ESR/EPR Spectrometer

Sales and Service by

Resonance Instruments, Inc.

Portable • High Performance • Reliable • Versatile
Competitively Priced • PC Control Via COM Port
Accessories and Upgrades

9054 Terminal Avenue, Skokie, Illinois 60077
1-847-583-1000, FAX 1-847-583-1021

E-mail: 8400@ResonanceInstruments.com
www.resonanceinstruments.com

L&M EPR Supplies, Inc.

4152 W. Lisbon Ave., Milwaukee, WI 53208

Phone: (414) 324-1052; Fax: (262) 889-2368

www.lmepr.com sales@lmepr.com

PRICES	TPX Capillaries	EPR Sampling Tubes
	Quantity	Price/Part (\$US)
	1-19	60.00
	20-99	50.00
	100+	40.00

KEYCOM
Characteristic Technologies

<http://www.keycom.co.jp/>
info@keycom.co.jp



Portable ESR instrument ; ESR-X10SB

Specification:

Sensitivity: $S/N \geq 10$ by $1\mu\text{M/l}$ TEMPOL at 4mW, and more at 80mW

Frequency: 9.6GHz

Magnetic field: 340mT

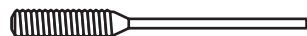
Sweep magnetic field: 15mT

Weight: 22kg

Application:

- Health: Exposed dosage, Superoxide, Hydroxy
- Materials: Oxidation degradation, Defect assessment dangling bonds

Molecular Specialties, Inc.



TPX Capillary
(Catalog No. TPX-2)

- **Compatible with most resonators**
- **Accepts liquid and solid samples**
- **Ideal for oxygen-control studies**
- **Easily cleaned**

Address: 10437 Innovation Drive, Suite 301,
Milwaukee, WI 53226

Phone: 414-258-6724

Contact: Richard J. Stevens

E-Mail: rich.stevens@molspec.com

Web: www.molspec.com

Contributor to the International EPR Society



EPR | ENDOR | NMR etc.

Varian / Bruker - accessories - parts - service

Magnetic Test and Measurement Equipment

- Fluxgate Nanoteslameters for measurement of environmental fields with 1 nT (10 μG) resolution.
- Hall effect Teslameters for magnet field measurement and control with resolution to 0.1 μT (1 mG)
- NMR Teslameters with field measurement from as low as 1.4 μT (14 mG) up to 23.4 T.
- Digital Voltage Integrators for flux change measurements.
- Precision Current Transducers and Electromagnet Power Supplies.
- Laboratory Electromagnet & Helmholtz Coil Systems for spectroscopy and imaging.

GMW

955 Industrial Road, San Carlos, CA 94070

Tel: (650) 802-8292 Fax: (650) 802-8298

E-mail: sales@gmw.com Web: www.gmw.com



Tengiz Sanadze (1930–2011)

Professor Tengiz Sanadze, Fellow of the International EPR Society and Full Member of the Georgian National Academy of Sciences, passed away on December 15, 2011.

Tengiz Sanadze was born in 1930 in Tbilisi (Georgia, former republic of the USSR). In 1948 he entered the newly established Physical-Technical Faculty of Tbilisi State University (TSU), graduated with honors from the university in 1953 and took the postgraduate course at TSU. In 1954 he joined the well-known Prokhorov's Laboratory at the Lebedev Physical Institute in Moscow for six months as a post-graduate. In this laboratory Tengiz Sanadze became an outstanding experimentalist in a rapidly developing field of science, electron paramagnetic resonance (EPR). Academician Alexander Prokhorov highly appreciated Tengiz Sanadze considering him as a gifted scientist, one of the most able among his students.

After returning back to TSU, Tengiz Sanadze constructed and built an X-band EPR spectrometer, one of the first in the USSR, and continued his PhD research. The main direction of his studies was EPR spectroscopy of transition elements in crystals, which were prospective for maser applications, in line with the then boom in quantum electronics. In 1961 Tengiz Sanadze founded and headed the Department of Radiophysics with several laboratories at TSU. He was head of this department till 2005.

The most famous discovery, named the “discrete saturation” (DS), was made by T. Sanadze and his group in 1966. When studying pulse saturation of inhomogeneously broadened EPR lines in various crystals, they observed patterns of specific dips, the so-called “burned holes”. The effect was evidently related to magnetic nuclei surrounding the paramagnetic centers, but initially a complete explanation was not found. Nevertheless, academician E. K. Zavoisky insisted on the publication of the experimental data in order to attract attention to this interesting effect and stimulate discussions in the magnetic resonance community. This work was published in 1967. Later, the physical picture was explained by Prof. Sanadze together with Prof. G. Khutsishvili, and soon the corresponding exhaustive theory appeared. The essence of the phenomenon consists in the saturation of quantum transitions within the multi-level energy spectrum caused by the hyperfine interactions of the electron spin with neighboring nuclei. Thus, the interpretation of the DS pattern allows the direct determination of the electron-nuclear interactions and so yields valuable structural information. In 1972, Tengiz Sanadze

supplemented his method by additional radio-frequency pumping at the nuclear magnetic resonance frequencies of the neighboring nuclei (the so-called radio-frequency DS) and built a corresponding spectrometer. Both versions of DS became classical in magnetic resonance techniques. These outstanding achievements were highly appreciated by the EPR community: in 2000, Professor Sanadze was awarded with an honorary title of Fellow of the International EPR Society (IES). Recently, the same ideas were combined with Fourier spectroscopy by other researchers, giving rise to powerful modern methods.

Tengiz Sanadze had skillful hands. The main parts of the EPR and DS spectrometers, including the liquid helium cryostats for the temperatures down to 0.8 K, were designed, constructed, and made by himself. Using his own technology, every year Tengiz Sanadze fabricated gold and silver medals for the IES awards. He was also the author of the IES Logo.

One should especially note the outstanding personality of Tengiz Sanadze. The credo of his life was “do good to others and forgive those who had harmed you”. At the same time, he was a man of principle, when the future of education and science in Georgia was concerned. Being always full of energy and optimism, he permanently encouraged his friends and colleagues in most difficult times of the modern history of Georgia. It was a great pleasure and privilege for everybody to collaborate with Tengiz Sanadze, since every scientific problem became very attractive and exciting under his direction. His kind smile brightened the day of his colleagues at the TSU. In his last years he became interested in enamel technology. He worked out his own enamel technology in which he got a patent. He created a unique silver icon, covered by enamel, which he presented to Patriarch of Georgia. All those who had heard him play Bach on the grand piano were amazed by his multifaceted talent.

We and all his colleagues and friends worldwide will keep Tengiz Sanadze alive in our grateful memory.

Alexander Shengelaya, Dimitry Daraselia and David Japaridze
Ivane Javakhishvili Tbilisi State University, Tbilisi

Vadim A. Atsarkin

Institute of Radio-Engineering and Electronics,
Russian Academy of Sciences, Moscow

Boris I. Kochelaev

Kazan (Volga Region) Federal University, Kazan
Aleksandr A. Manenkov and Anri A. Rukhadze

Prokhorov General Physics Institute,
Russian Academy of Sciences, Moscow

Kev M. Salikhov and Maksut M. Zaripov
Zavoisky Physical-Technical Institute,
Russian Academy of Sciences, Kazan

NORELL®

eprtubes.com

- Natural Quartz EPR Tubes
- Suprasil® Quartz EPR Tubes

Custom Sizes Available
Supplied with PTFE Tapered Caps

PHONE: 1.800.519.3688 or 856.697.0020

FAX: 1.800.245.5932 or 856.697.0021

EMAIL: customerservice@nmrtubes.com



53rd Rocky Mountain Conference Snowmass Conference Center, Snowmass, Colorado, USA, July 24–28, 2011

Once a year, a group of EPR spectroscopists put down their burdens and migrate to Colorado to talk about their science, meet friends old and new, and enjoy the classic scenery of the western slope of the Rocky Mountains. Ancient red rock, even older granite, evergreens, and aspens combine with breathtaking vistas, good food, and great company to produce an exciting, informative, and thought-provoking four days.

I heard from many of the attendees that this was the best Rocky Mountain conference ever. Some of that credit goes to Alex Angerhofer, the Chair, who worked tirelessly to produce this event, and his co-Chairs, Christoph Boehme of the University of Utah, and Gail Fanucci of the University of Florida. But the real credit goes to the high quality of the presentations and the wide range of topics covered this year.

This was the first time that the conference had been held without an NMR component. The SSNMR session at the Rocky Mountain Conference is now scheduled for alternate years that are different from the years for the Chamonix meeting (www.alpine-conference.org). Indeed, there were fewer attendees, but not many fewer. And there was the option to hear all the talks which is not possible with overlapping sessions. Next year the solid-state NMR participants will be back. As we all settle into this routine, it will be interesting to see what changes, if any, are manifest.

The sessions, as always, balanced different applications of EPR spectroscopy. Sunday afternoon saw a Spectral Simulation workshop by Stefan Stoll where he demonstrated the ins and outs of EasySpin. This was followed by the Bruker Annual Progress and Products Report and the reception. The sessions began on Monday with Materials and Methods, chaired by Christoph Boehme, which ranged from observing defects in a variety of materials to surface studies of pH and hydration dynamics of tau protein. This was followed by the Spin Trapping session chaired by Frederick Villamena which included synthesis of spin traps and studies of various chemical and biochemical radical-based reactions. Tuesday began with the session on Metals in Biology, chaired by Kurt Warncke. The range of topics in this ses-



From left to right: Reef Morse, Gareth Eaton and Shreya Uppal at the poster session.

sion was broad – there was literally something for everyone. Following lunch, Frederick Villamena gave a workshop on Spin Trapping. Wednesday's morning session, chaired by Gail Fanucci, was on Structure and Dynamics of Proteins where the presenters showed their progress in understanding not only internal protein motions, but inter-protein dynamics as well. Wednesday's afternoon session, chaired by Alex Angerhofer, was the Young Investigator session. These presentations were uniformly outstanding and continue to demonstrate the extraordinary talent of the newer scientists in our field. Wednesday concluded with the start of the In Vivo EPR session chaired by Howard

Halpern. This session reminded me of how far in vivo EPR has come in the last few years.

The Piette Lecture is a feature of the Rocky Mountain Conference. It honors a scientist who has made major contributions in the field of biological EPR. This year's lecture was given by Jeanette Vasquez-Vivar from the Medical College at Wisconsin. Her talk, "Redox Sensitive Switches Regulating Superoxide and Nitric Oxide from eNOS" showed how spin trapping continues to reveal information about NOS and oxidant production regulation.

Poster sessions were held on Monday and Tuesday evenings leaving Wednesday evening free for those who wanted to attend the weekly rodeo held just down the road from the conference center.

On Tuesday, arguably the youngest person ever to present at this conference (13-year-old Shreya Uppal) presented her work on free radical formation during roasting of coffee. It was well received.

The International EPR Society met on Wednesday. Michael Bowman, Vice President of the IES, presented the IES Fellowship certificate to Kispert Lowell (see *EPR newsletter* 21/2, p. 2). Reef Morse reminded the group that we own the URL eprwiki.org. We have an opportunity to use this web site to promote EPR (compare to the web site at nmrwiki.org). People interested in working on this can contact Reef at reefmorse@scientific-software.com.

Next year the conference will be held in Copper Mountain, Colorado at the Copper Conference Center from July 15th through 19th. Further information, including travel, lodging, and deadline dates, can be obtained from www.rockychem.com.

Reef Morse



Gage Redler (left) and Boris Epel (right) pose in front of the Maroon Bells, some of the spectacular scenery available to conference attendees.

EUROMAR 2011

Frankfurt (Main), Germany
August 21–25, 2011

This year the EUROMAR meeting took place at the Goethe University Frankfurt, organized by the Center of Biomolecular Magnetic Resonance (BMRZ) in Frankfurt, with Prof. Dr. Thomas Prisner as main organizer. The annual EUROMAR conference emerged in 2006 from the European Experi-

The German Magnetic Resonance Society (FGMR), a sub-division of the Gesellschaft Deutscher Chemiker (GDCh), decided to make this conference their annual meeting, as well as the International EPR Society. For the first time this year the meeting was joint by the triennial European Federation of EPR Group (EFEPR) meeting. The conference was started on Sunday afternoon by a tutorial with the title: *Crossing the borders: From Liquid and Solid State NMR to DNP and*



mental NMR conference, the Ampere congress and the NMR Discussion Group Meeting of the Royal Society of Chemistry and is now the main meeting of the European magnetic resonance community. Its mission is to communicate new methodological approaches, innovations and applications. It covers all topics of magnetic resonance: liquid and solid-state NMR methods, dynamic nuclear polarization and EPR, spin and quantum chemical theory, technological advances and new applications.

EPR. Introductory lectures were delivered by Prof. James Keeler (Cambridge), Prof. Malcolm Levitt (Southampton), Prof. Marina Bennati (Göttingen) and Prof. Edgar Groenen (Leiden). The evening ended with the prize ceremony, where Prof. Gareth Morris (Manchester) got the Russel-Varian Prize, Dr. Mark Hunter (Wellington) the Raymond Andrew Prize from the AMPERE society, Prof. Ronald Mason (NIH/NIEHS, RTP) the Gold Medal of the International EPR

Society, and Loic Salmon (Grenoble) and Dr. Hans Moons (Antwerpen) the Ulderico Segre Prize. The evening finished with an *Oktoberfest* reception on the green area of the Goethe University at the Campus Westend, where the whole conference took place. The following four days were filled with lectures and poster sessions. 110 talks (14 plenary, 38 invited) and more than 600 posters were presented. Within the week Wiley presented three prizes to young scientist, selected by their abstracts. On Wednesday morning the prize session of the German Magnetic Resonance Society (FGMR) took place, where four young scientists received the Ernst-Award for their outstanding published papers by Prof. Richard Ernst himself. More than 20 exhibitors presented their products at the conference site; either in the lobby of the lecture hall building or in the nearby Casino building. In the evening this was also the place to meet other scientist and exhibitors, inside the building and on the green area close to the pond, where food, drinks and music was offered by Bruker BioSpin and Agilent Technologies. Many scientists used the opportunity to relax there from the lectures and poster sessions of the full day and to recover from the unusual warm and humid weather in Frankfurt! More than 1000 scientist participated in the conference; a big success for EUROMAR and a big surprise and challenge for the organizers. Very nice was also the ratio between young scientists (eligible for a reduced student fee) and senior scientists. The 40:60 ratio made up very lively poster sessions, overcrowded lecture halls (with people sitting on the floor directly in front of the speaker) and many stimulating new contacts and discussions. On Thursday evening the conference ended with a banquet and an impressive thunderstorm at the Palais in the Frankfurter Zoo, with more than 600 participants, food, wine, a speech of Prof. Geoffrey Bodenhausen, the chair of the EUROMAR board of trustees from 2005-2011, music and dancing later on. Main public sponsors for the meeting, the EMAR (Multidisciplinary Frontiers of Magnetic Resonance) program of the ESF, the Goethe University and the German Research Society (DFG), helped very much to the success of the conference by their financial support.

Thomas Prisner

EUROMAR is always a highlight of the magnetic resonance calendar providing the opportunities for NMR and EPR spectrosc-



On the lawn at EUROMAR (from left to right): Nikolay Enkin, Thomas Nick, Roberta Pievo, Maria-Teresa Türke, Igor Tkach and Alistair Fielding.

copists to mix. This year's conference was held in Frankfurt. The city is known for being the largest financial centre in continental Europe but has many hidden treasures such as Saint Bartholomew's Cathedral and the Goethehaus. We were orientated by many kind helpers in blue shirts from the various magnetic resonance groups.

The Sunday featured four workshops and was an opportunity to revise topics ranging from coherence selection, SpinDynamica, dynamic nuclear polarization (DNP) and high frequency EPR. It was also an opportunity to engage with and ask questions to world experts in their field.

The next four days were packed with lectures in three parallel sessions on NMR and EPR. These included pioneering work on long-range distance measurements on nucleic acids in cells using NMR (R. Hänsel) and EPR (I. Krstić). Also, the use of trityl radicals for DEER measurements was presented (O. Schiemann). There were many stimulating presentations from young scientists covering topics such as high sensitivity pulsed EPR with induction detection (A. Blank), Mn^{2+} -Nitroxide DEER measurements (I. Kaminker), orientation dependence DEER for transition metals (A. Bowen), photosynthesis illuminated by joining photo-CIDNP and quantum chemistry (B. Bode), saturation factors of nitroxide radicals in liquid DNP (M. Türke), and work on the hydrogen-converting cluster of [FeFe] hydrogenase (A. Silakov). Key-note lectures included work on molecular flexibility (W. Hubbell), conformational exchange processes (A. McDermott), membrane protein structure (G. Jeschke), DNP (S. Vega) and multifrequency EPR (R. Bittl).

There was a meeting of the International EPR society chaired by S. Misra. We learnt about the general accounts and how one edition of the *EPR newsletter* per year may be distributed for free in the community. One thing that particularly stood out is the lack of student members, just twenty-five. There was also a meeting of the EFEPR groups, chaired by G. Smith. We heard about a new COST proposal and how the next EPR summer school will be in Israel. All meetings were well attended and offered opportunities to contribute.

The weather was hot and humid and much needed refreshment was provided in all of the evenings by hospitality suites. Of course, wurst, pretzels and German beer was on the menu. The final event on the programme was the conference banquet held at Frankfurt Zoo. There was no time to see the animals rather to mix with fellow delegates and enjoy the food!

We were treated to a live Jazz band and the floor was open for dancing. The evening ended for a group of us with a relaxed walk back to the hotels through Frankfurt city at 3 am.

Alistair J. Fielding

First Turkish Bruker Magnetic Resonance Workshop İstanbul, İzmir, and Ankara, Turkey September 26–30, 2011

The "First Turkish Bruker Magnetic Resonance Workshop" was organized in Turkey with a joint initiation of German and Turkish magnetic resonance experts from academia and Bruker Biospin. The aim of the workshop was to cover a broad range of magnetic resonance techniques, such as solution-state/solid-state NMR, EPR spec-

troscopy and magnetic-resonance hardware. Moreover, increasing general understanding and awareness of the magnetic-resonance technique and related phenomenon was aimed at during this event. Three full day workshops were held at Koc University (İstanbul), İzmir Institute of Technology (İzmir) and Bilkent University (Ankara) between 26 and 30 th September 2011. A general introduction of different magnetic resonance techniques and a broad selection of applications were presented for each topic. Moreover, a brief outline of state-of-the art EPR & NMR instrumentation, software and hardware was presented.

A participation certificate for the participations of the workshop was given by Bruker at the end of the workshop. Speakers were Sylvain Meguellaatni from Bruker BioSpin, Dr. Rainer Kerssebaum from Bruker Biospin, Dr. Yasar Akdogan from Max Planck Institute for Polymer Research, and Dr. Ümit



The speakers of the "Turkish Bruker Magnetic Resonance Workshop" after the workshop dinner in Ankara. From left to right: Ümit Akbey, Yasar Akdogan, Sylvain Meguellaatni, Rainer Kerssebaum.

Akbeý from Leibniz Institute für Molekulare Pharmakologie.

This workshop was at an introductory level, so that a basic understanding was obtained at the end of the workshops. In the morning lectures (in four lectures), introduction to solution-state NMR, solid-state NMR, EPR, and instrumentation were given. In the afternoon lectures, possible applications of solution and solid state NMR, EPR, and hyphenation techniques were given. In the Ankara workshop, basics of MRI, solution-state boron NMR and a brief history of Turkish NMR society were additionally explained.

The workshop at Bilkent University in Ankara was more elaborate with the participation of several magnetic-resonance and spectroscopy experts from Turkey. Prof. Sefik Suzer (Spectroscopy and Chemistry Department Head, Bilkent University), Prof. Ergin Atalar (MRI), Prof. Engin Akkaya (NMR) and Prof. Metin Balci (NMR) contributed to the workshop. In total, there were nearly 250 participants present. This number is particularly motivating especially when thinking of the Magnetic-Resonance community in Turkey. After being encouraged by extraordinary demand, we will try to organize a more advanced and longer

magnetic-resonance summer workshop or summer school with the help of several experts in the field from all over Europe.

We have initiated a solid link between Germany and Turkey with this event by the participation of both Turkish and Germany experts. We hope that this event will increase the overall interest for magnetic-resonance in Turkey, and as well will increase the Turkish magnetic-resonance society's connections to European societies.

Ümit Akbeý

International Conference "Spin Physics, Spin Chemistry and Spin Technology" Kazan, Russia, November 1–5, 2011

The conference was organized by the Zavoisky Physical-Technical Institute, Russian Academy of Sciences. It was aimed at bringing together spin science and spin technology researchers specializing in different fields: chemical physics, photonics, electron processes in semiconductors, molecular electronics, etc. The conference hosted the Zavoisky Award 2011 ceremony, the Annual Workshop "Modern Development of Magnetic Resonance" and the Russian-German Workshop "Functional

Spin Materials: from Fundamental Research towards Novel Applications".

The conference was opened by the Zavoisky Award 2011 ceremony on November 1st. The Zavoisky Awardee 2011 Seigo Yamauchi (Sendai) was distinguished for his contribution to multi-resonance and multi-frequency time-resolved EPR spectroscopy in elucidating the electronic structures of excited states in organic and metallo-organic complexes. The decision of the Zavoisky Award Committee was announced by Kev M. Salikhov, Chairman of the committee, Zavoisky Awardee 2004. The award was presented by Ravil F. Muratov, Deputy Prime-Minister of the Republic of Ta-

tarstan. Jack H. Freed, President of the IES, Zavoisky Awardee 1998, Daniella Goldfarb, Vice-President of ISMAR, Zavoisky Awardee 2009, Wolfgang Lubitz, member of the AMPERE Committee, Zavoisky Awardee 2002, were among those who warmly congratulated Seigo Yamauchi. The laureate gave a plenary talk "Time-Resolved EPR in the Electronically Excited States".

There were five plenary sessions with a total of 16 talks (five of them on the development of magnetic resonance). The conference included seven sections: spins in low-dimensional structures; spin-dependent processes in nanostructures; spin methods of the deter-



Presentation of the Zavoisky Award 2011. From left to right: Stephen Soehnlén (Springer, Wien), Dzhavdet Sh. Suleimanov (Vice-President of the Academy of Sciences of the Republic of Tatarstan, Kazan), Ilshat R. Gafurov (Rector of the Kazan (Volga Region) Federal University), Ravil F. Muratov (First Deputy Prime-Minister of the Republic of Tatarstan, Kazan), Seigo Yamauchi (Tohoku University, Sendai), Kev M. Salikhov (Zavoisky Physical-Technical Institute, Kazan), Jack H. Freed (Cornell University, Ithaca), Daniella Goldfarb (Weizmann Institute, Rehovot), and Wolfgang Lubitz (Max-Planck Institute for Bioinorganic Chemistry, Mülheim-an-der-Ruhr).



Thomas Prisner gives his talk on DNP.

mination of electron and spatial structure in physics, chemistry, biology; magnetic states and transport properties; quantum computing with spins; spin-dependent processes in semiconductors; development of magnetic resonance. There were presented 66 oral and invited talks, and 50 posters. Presentations were made by the scientists from Germany, Israel, Italy, Japan, Russia and USA.

To give a short overview of plenary talks, first we mention Wolfgang Lubitz (Mülheim-an-der-Ruhr), who discussed the problem of renewable energy sources and Klaus Möbius (Berlin), who delivered a talk on high-frequency EPR study of the structure of the intermediate states during the electron transfer in the reaction center of photosynthesis. Anatoly V. Vedyayev (Moscow) gave a talk about spins as itinerant carriers of information. The topical theme of molecular magnetism was developed in the talks of Dante Gatteschi (Florence) and Bernd Büchner (Dresden). Various aspects of spintronics were considered by Valery V. Ryazanov (Chernogolovka), Yuri G. Kusraev (St. Petersburg), Anatoly V. Dvurechenskii (Novosibirsk), Ilgiz A. Garifullin (Kazan) and Mikhail A. Milyaev (Ekaterinburg). Impressive results on the application of multi-frequency EPR for studying molecular mobility of proteins, membranes and order disordered systems were presented by Jack H. Freed (Ithaca) and Sergei A. Dzuba (Novosibirsk). The plenary lecture of Thomas Prisner (Frankfurt-am-Main) was concerned with the problems of the dynamic nuclear polarization. Daniella Goldfarb (Rehovot) presented latest results on nanometer scale distance measurements in proteins and nucleic acids using Gd^{3+}

spin labeling. The plenary lecture of Igor V. Koptiyug (Novosibirsk) dealt with the studies of the parahydrogen-induced polarization of heterogeneous catalysis. Oral and invited talks covered all aspects of the scope of the conference.

The poster session was focused on NMR tomography, optical detection of EPR of paramagnetic ions in dielectric crystals, application of EPR in medical diagnostics and the development of the theory of EPR spectroscopy.

The conference demonstrated the most important directions of studying spin systems and the development of spin technology. In two years a similar conference will be organized by the Ioffe Physicotechnical Institute, Russian Academy of Sciences (St. Petersburg, Russia).

W. A. Mozart's "Concert for flute, harp and orchestra c-major KV 299" (flute Uwe Eichhoff, Bruker BioSpin, Karlsruhe, harp Yana Lyashko, Kazan, and orchestra "New Music", conductor Anna Gulishambarova, Kazan) was one of the highlights of the cultural program.

We are grateful to the participants of the conference and to everybody who contributed to its organization. The support of the Government of the Republic of Tatarstan, Russian Academy of Sciences, Russian Foundation for Basic Research, Academy of Sciences of the Republic of Tatarstan, Bruker BioSpin and Abak Ltd. (Kazan) is gratefully acknowledged.

Bernd Büchner and

Kev M. Salikhov

Co-Chairmen of the Program Committee

Valery F. Tarasov

Chairman of the Local Committee

A trip one has to make in the field of EPR is to Kazan, Russia. It is the natural home of EPR discovered by Zavoisky in 1944 (his original notebook can be found in Kazan State University). It is also known to be where Russia meets the East, where you find beautiful mosques and churches side-by-side. Dominating the landscape is the Kazan Kremlin, which acts as a universal memorial to Volga culture with many museums and a mosque Kul Sharif and Blagoveschenkiy cathedral. There was much opportunity to learn about the history of Kazan with guided tours provided at the beginning and at the end of the conference.

The focus of the conference was on spin science and contained the annual workshop "Modern Development of Magnetic Resonance" and the Russian-German workshop "Functional Spin Materials: From Fundamen-



The faces of Kazan architecture; Russian and Tatar.

tal Research towards Novel Applications." There were talks on areas such as spintronics, molecular magnets, spin optoelectronics, magnetic isotope effect in radical reactions and quantum computing. This provided an overview of how EPR plays an important role in the development of spin science.

The five days contained lectures from prominent EPR scientists. There were insightful presentations on Mechanisms of Light-Induced Water Splitting (W. Lubitz), Molecular Dynamics in Proteins and Membranes (J. Freed), Characterization of Transient Conformational Changes (K. Möbius), Dipolar Interactions for the Determination of Macromolecular Structure (M. Bowman), Nanometer Scale Distance Measurement (D. Goldfarb) and Enhanced Sensitivity in EPR and NMR (T. Prisner), to name a few. I. Gromov also gave a presentation on the design and performance of the Millimeter Wave EPR System ELEXSYS E780.

The conference also hosted the Zavoisky Award 2011 ceremony. The award was graciously received by Professor Seigo Yamauchi (Sendai, Japan) for an outstanding contribution to the research into the electron structure of excited state of organic and metal-organic complexes through multifrequency time-resolved EPR spectroscopy.

The conference also served to celebrate the 75 th birthday of Professor Kev Salikhov. The highlight was a concert featuring local dancing, singing and instrumental music. He received many presents and warm tributes.

As we left Kazan it was -12°C and snowing but we all left warm in spirit.

Alistair J. Fielding

International Workshop “Advanced ESR Studies for New Frontiers in Biofunctional Spin Science and Technology” (AEBST 2011)
Kobe, Japan, November 13–14, 2011

International Workshop “Advanced ESR Studies for New Frontiers in Biofunctional Spin Science and Technology” (AEBST 2011) took place at the Takigawa Memorial Hall, Kobe University, on November 13 and 14, 2011. This International Workshop was held prior to the 50th Annual Meeting of the Society of Electron Spin Science and Technology (SEST2011), which was held in Sendai. This International Workshop was organized by the Organization of Advanced Science and Technology, Kobe University, and was cosponsored by SEST. The aim of the workshop is to combine scientists developing advanced ESR techniques and scientists studying biological systems by ESR, and to open up new frontiers in biofunctional spin science and technology. It attracted 49 participants from 7 countries including 8 scientists from abroad.

The workshop started with an introduction of the Organization of Advanced Science and Technology by K. Tominaga (Kobe, Japan), the Director of Molecular Photoscience Research Center, followed by a welcome address by the

chairperson H. Ohta (Kobe, Japan). The scientific program then started with a plenary talk by J. R. Norris Jr. (Chicago, USA) who spoke about light-induced electron transfer, triplet states and electron spins in nature’s eumelanin biopolymer. The invited talks on the first day were mainly focused on the applications of ESR to biological systems and developments of advanced ESR techniques, and it was followed by a laboratory tour of Ohta’s group in the research center, the poster session and the banquet. Participants enjoyed the Japanese sake, the food and the fantastic night view including stimulating discussions at the banquet. The invited talks on the second day were mainly focused on the developments of advanced ESR techniques including imaging and dynamical nuclear polarization (DNP), and structural and electronic state analyses by ESR. During the workshop we had 20 invited talks by James R. Norris Jr. (Chicago, USA), Yasuhiro Kobori (Shizuoka, Japan), Kenichi Yamada (Fukuoka, Japan), Hidehiko Nakagawa (Nagoya, Japan), Aki Hirayama (Tsukuba, Japan), Osamu Inanami (Sapporo, Japan), Yukio Nagasaki (Tsukuba, Japan), Kev M. Salikov (Kazan, Russia), Eiji Ohmichi (Kobe, Japan), Hitoshi Ohta (Kobe, Japan), Kazuhiro Ichikawa (Fukuoka, Japan),

Toshimichi Fujiwara (Osaka, Japan), Hiroshi Hirata (Sapporo, Japan), Sergey Demishev (Moscow, Russia), Sergei Zvyagin (Dresden, Germany), Hong-In Lee (Daegu, Korea), Hiroshi Hori (Osaka, Japan), Czeslaw Rudowicz (Szczecin, Poland), Toshiaki Arata (Osaka, Japan), and Toshikazu Nakamura (Okazaki, Japan). We also had 20 poster presentations. We think that the workshop had interdisciplinary atmosphere and was very stimulating for students and young researchers, who interacted with leading experts from various fields during the workshop. I also would like to add that some of invited speakers and their accompanying persons from abroad enjoyed the hot spring in Arima spa, which is located on the other side of the Rokko Mountain from the university, the day before the workshop. The lady’s program to enjoy the bay cruise and to visit the sake brewery was also held on the first day. Finally I would like to thank all speakers, participants, members of local organizing committee (Susumu Okubo, Eiji Ohmichi, Takahiro Sakurai, Keisuke Tominaga (Kobe Univ.)), our secretary Ms. Ogawa and our students who led the workshop successful.

Hitoshi Ohta,
Chair of AEBST2011



Group photo of AEBST2011.



Sharon Ruthstein became a new faculty member in the Department of Chemistry at Bar-Ilan University, Israel, in October 2011.

She obtained her B.Sc. in Chemical Engineering (summa cum Laude) from the Technion, Haifa, Israel, after which she continued her graduate studies in the Chemistry Department at The Weizmann Institute of Research, Rehovot, Israel. She

achieved her Ph.D. with distinction under the supervision of Prof. Daniella Goldfarb. Her graduate research exploited CW and Pulsed EPR together with Cryo-TEM to resolve the formation mechanism of silica mesoporous materials at two scales, the molecular one and at the nano level. The combination of these methods resolved the

transition from a homogeneous solution of polymeric micelles into a defined hexagonal/cubic silica structure.

After graduating from the Weizmann Institute in March 2008, she became an EMBO Postdoctoral fellow at the University of Pittsburgh where she worked under the supervision of Prof. Sunil Saxena. Her interests there were focused on obtaining structural information on metalloproteins and large membrane proteins using Cu(II) as a paramagnetic probe. One of her projects was to resolve the coordination site of Cu(II) in the human Glycine Receptor 250 kDa membrane protein.

Dr. Ruthstein's current research focuses on biostructural questions using both site-directed spin labeling and transition metal ions. More specifically, she is aiming to explore biological pathways which are related to the copper cycle in bacterial and human cells.

During her academic career Dr. Ruthstein has received several awards such as the Eshkol Scholarship, the Wolf Foundation Fellowship, the Auto Schwartz and Dean's Excellence Prize for her Ph.D. studies, the JEOL Prize for the best student talk at the ERC-RSC conference, and the EMBO long-term post-doctoral fellowship.

Market place

POSITIONS

Postdoctoral position

A postdoctoral position is available in the laboratory of Dr. Stefan Stoll in the Department of Chemistry at the University of Washington in Seattle (USA).

The Stoll lab uses Electron Paramagnetic Resonance (EPR) spectroscopy in all its forms to investigate molecular paramagnetic system of interest in biology and materials.

In addition, the Stoll lab is active in development of new experimental EPR methods and in the development of EPR simulation tools (easyspin.org).

Visit stoll-lab.org for more information.

Highly motivated candidates with a recent Ph.D. in chemistry, physics or related areas are encouraged to apply.

Candidates should have a strong experimental background in magnetic resonance or optical spectroscopy.

The qualified candidates are expected to work independently and as part of a team, with excellent written and oral communication skills. Applicants should send their CV with publication record, contact information and three references to Dr. Stefan Stoll (stst@uw.edu).

EQUIPMENT

Design and construction of EPR electronics

The University of Denver can supply electronic design and construction services for EPR applications. Low-noise pulse amplifiers, low-noise 100 kHz preamplifiers, boxcar integrators, and pulse timing systems are available. We also supply a conversion kit to convert Varian field-control units to voltage-controlled scan operation. A 6-digit 1-ppm frequency counter is available in X-, C-, S-, L-band, or MHz versions. Complete microwave/RF bridges from 150 MHz to L-, S-, or C-band are available from designs previously built and tested at the University of Denver.

Please contact: Richard W. Quine, e-mail: rquine@du.edu, phone: 1-303-871-2419

For sale: Varian and ESR equipment

Resonance Instruments has available: (1) Replacement klystrons for Varian EPR bridges and some Bruker bridges (at reduced prices) and other klystrons; (2) Resonance Instrument's Model 8320A is a general purpose Hall-effect based magnetic field controller that provides direct control and precise regulation of the magnetic field between the pole pieces of an electromagnet. Its high resolution permits precise adjustment of the magnet's field either through the front panel keyboard or through an RS232 serial interface with your PC.

Please contact: Clarence Arnow, President, e-mail: 8400sales@resonanceinstruments.com, phone: 1-847-583-1000, fax: 1-847-583-1021.

Available: Used Varian EPR equipment

(1) Varian E-104 EPR spectrometer with vertical style bridge and e-line fieldial. (2) Varian E-9 EPR spectrometer. Both available with warranty and continued service support. (3) Varian TM cavity with flat cell holders and flat cells. (4) Varian E-257 variable temperature controller with heater sensor and insert holder. (5) Varian E-272B field/frequency lock accessory.

Please contact: James Anderson, Research Specialties, 1030 S. Main St., Cedar Grove, WI 53013, USA.

phone/fax: 1-920-668-9905, e-mail: janderson36@wi.rr.com

Wilma-LabGlass A Name You can Trust EPR Sample Tubes and Accessories

- The largest selection of Natural Quartz and Suprasil Sample Tubes and Capillaries
- Dewar Flasks and Inserts
- Tissue, Aqueous and Flow Cells
- Extensive custom Quartz glass capabilities



Contributing Sponsor of the International EPR (ESR) Society
Tel: 800.220.5171, 856.697.3000, www.wilma-labglass.com



EPR Field Service Engineer

Location

Billerica

Division

EPR

Job Description

We are looking for a highly motivated individual to join our EPR Service team to install and support high technology EPR Spectrometer Systems in research labs of pharmaceutical companies, universities and government research labs. The EPR Field Service Engineer will work with highly complex equipment which requires a basic understanding of the physics of the instruments serviced.

The Field Service Engineer will install and service our EPR Spectrometer Systems, familiarize/train customers for basic operation of the equipment and re-qualifies the entire instrument after service repair by running complex samples for verification.

The FSE organizes schedule in accordance with customer needs and determine which customers must be visited onsite, which can be attended to remotely and which ones need immediate attention; makes own travel arrangements; coordinates with customers WebEx Sessions, phone support, and lab facility inspection for new installs.

The FSE communicates/works closely with EPR service/support center and Management and attends in depth product training on new and updated Bruker products in German factory by product experts.

Qualifications:

The ideal candidate will possess a BS in electrical engineering, electronics or related fields or equivalent experience. Experience diagnosing and repairing mechanical, electromechanical and/or electronic equipment is required.

General understanding of analog electronics, digital electronics, high voltage circuitry/circuits, microwave technology, vacuum technology, cryogenics; strong technical skills on analytical instrumentation required.

Customer focus and interaction and ability to interact and communicate with scientists who typically possess a Ph.D. (or Master's Degree) in Biochemistry, Biophysics or Microbiology.

Excellent communication skills with the ability to communicate complex technical issues in an easy to understand manner are essential.

Strong organization and prioritizing skills, ability to work independently yet has a team focus, responsive and reliable are all key strengths of the ideal candidate.

Working knowledge of MS Office products and MS Windows and understanding of networking required; Linux and SAP knowledge is desired.

Ability and willingness to travel as travel is required along with a valid driver's license and passport.

Contact

Please send resume, cover letter and salary requirements to bruker.jobseprfse0620@bruker-biospin.com

No agencies or phone calls please

Bruker BioSpin

Attention: HR

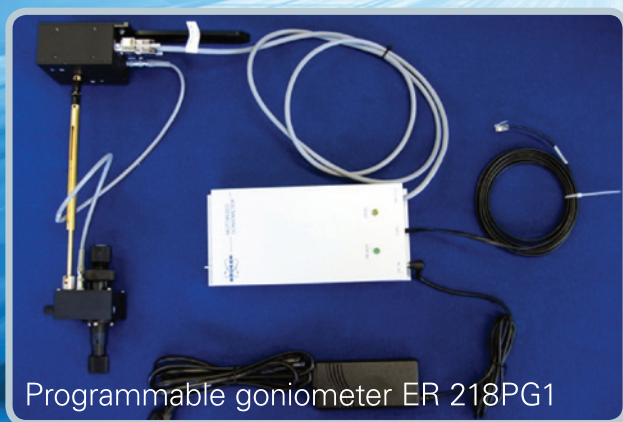
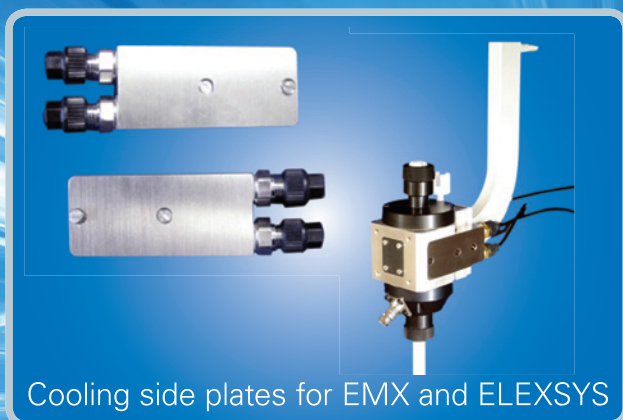
15 Fortune Drive

Billerica, MA 01450

Human Resources/Benefits Paragraph

Bruker BioSpin offers a comprehensive and competitive benefits package including medical, dental, 401(k), paid vacation, holidays and tuition reimbursement. Bruker Corporation is an Equal Employment Opportunity and Affirmative Action employer.

For Your Specific Needs...



- **Higher Temperatures**
- **Experiment Automation**
- **Improved Resolution**

- Conduct experiments at temperatures up to 600 K with specially designed cooling side plates for standard EMX, ELEXSYS and ER 4102ST probeheads
- Simplify and speed up single crystal EPR measurements with a programmable goniometer, with angular resolution of 0.125 degree and reproducibility of 0.5 degrees
- Add spatial dimension to X-Band EPR with high power 2D gradients (200 G/cm); Compatible with ER 073 magnets, ER 4108TMHS resonators and ER 4112HV helium systems

Discover our exciting range of EPR accessories: www.bruker.com/epr

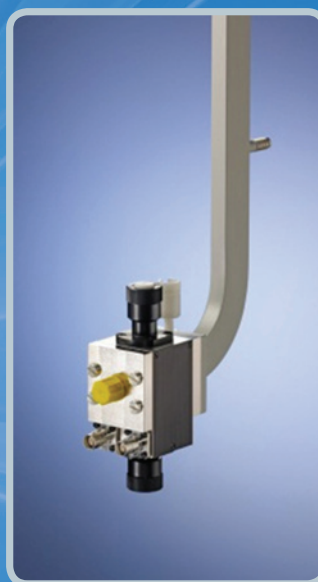
Dedicated EPR X-Band Probeheads



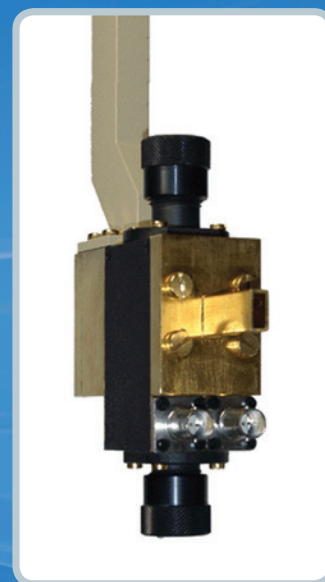
ER 4123D
Dedicated to spin labels



ER 4114HT
CW-EPR at extreme temperatures



ER 4116DM
Separates allowed and forbidden transitions



ER 4104OR
Correlates EPR and optical signals

- ER 4123D: Dielectric resonator for analysis of aqueous samples available only in limited quantities. Ideal for studying saturation effects.
- ER 4114HT: High temperature resonator for studies of all sample classes at 400 K to 1200 K.
- ER 4116DM: Dual mode resonator specifically designed for studying forbidden transitions in triplets, biradicals, transition metal and rare earth ions.
- ER 4104OR: Optical transmission resonator designed for convenient optical access from the front and rear side. Equipped with both modulation and rapid scan coils.

Unlock the potential of your EPR system: www.bruker.com/epr