

DMP NEWSLETTER

Division of Materials Physics

A Division of The American Physical Society

January 2000

James C. McGroddy Prize in New Materials

Purpose: To recognize and encourage outstanding achievement in the science and application of new materials. This shall include the discovery of new classes of materials, the observation of novel phenomena in known materials leading to both fundamentally new applications and scientific insights, and shall also include theoretical and experimental work contributing significantly to the understanding of such phenomena.

2000 McGroddy Prize Winner: **M. Brian Maple**
University of California, San Diego

Citation: "For the synthesis of novel d and f electron materials and for the study of their physics."

Background: M. Brian Maple is the Bernd T. Matthias Professor of Physics at the University of California, San Diego (UCSD). He received an AB in mathematics and a BS in physics from San Diego State University (SDSU) in 1963, and a Ph.D. in physics from UCSD in 1969. His research interests include superconductivity, magnetism, strongly correlated electron phenomena, high pressure physics, and surface science. Professor

Maple is a Fellow of the APS and the AAAS, served as chairman of the APS Division of Condensed Matter Physics in 1987, and presided over the celebrated high T_c superconductivity session (the "Woodstock of Physics") during the 1987 APS March meeting. He has chaired or co-chaired ten international conferences, has served on Advisory Committees for seven national laboratories and on two IUPAP Commissions. He has served on review committees for the DOE, NSF, and numerous universities.

Professor Maple's honors and awards include: Excellence in Teaching Award, UCSD, 1983; John Simon Guggenheim Memorial Foundation Fellowship, 1984; Distinguished Alumnus of the Year, UCSD, 1987; and SDSU (College of Sciences, 1988; Bernd T. Matthias Scholar, Center for Materials Science, Los Alamos National Laboratory, 1993; APS David Adler Lecture-ship Award, 1996; Humboldt Senior Scientist Award, 1998; and Frank H. Spedding Award, 1999.

David Adler Lectureship Award

Purpose: To recognize an outstanding contributor to the field of materials physics who is noted for the quality of his/her research, review articles and lecturing.

2000 Adler Award Winner:
Bertram Batlogg
Bell Labs, Lucent Technologies, Murray Hill, NJ

Citation: "For his contributions to materials physics, including superconductivity, colossal magnetoresistance, heavy fermions and organic semiconductors, and his excellence in lecturing on materials science and industrial research to both scientific and lay audiences."

Background: Dr. Bertram Batlogg works at Bell Labs, Lucent Technologies, Murray Hill, NJ. He is a native of Austria and received his higher education at ETH in Zurich, Switzerland, where he earned the Diploma in Physics in 1974 and the Doctorate in Natural Sciences in 1979. He then joined AT&T Bell Laboratories to work on materials-based condensed matter physics in the Physical Sciences Research Division. Since 1986 he has been head of the Materials Physics Research department, and he served as a director of the Consortium for Superconducting Electronics (1990-1996) that developed, among others, superconducting microwave filter systems for wireless communication.

Dr. Batlogg's research has been focused mainly on highly correlated electron systems, including mixed-valence Rare Earth compounds, heavy Fermion Actinide com-

In this Issue ...

This Newsletter announces the new award winners and APS Fellows who were sponsored by DMP. Enclosed also is your ballot for the 2000 elections to the DMP Executive Committee. Biographies of the candidates are given.

FEATURES

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New APS Fellows Sponsored by DMP

Bartelt, Norman Charles

Sandia National Laboratories

For his pioneering work on the theory of thermal fluctuations and dynamic surface structure.

Collings, Peter John

Swarthmore College

For his fundamental work in liquid crystal research particularly the optical properties of chiral liquid crystals and his leadership in the area of undergraduate education.

Fuoss, Paul Henry

AT&T Laboratories

For pioneering contributions to the science of x-ray scattering, including anomalous scattering for amorphous materials, grazing incident scattering to study monolayers on surfaces and in-situ scattering during chemical vapor deposition.

Ice, Gene Emery

Oak Ridge National Laboratory

For advances in x-ray resonant scattering techniques to study the many body problems of atomic electron rearrangements, local atomic disorder and magnetism, and for innovations in synchrotron x-ray optics.

Jena, Purusottam

Virginia Commonwealth University

For his pioneering contributions to the understanding of electronic structure, equilibrium geometries, stability, electronic and magnetic properties of atomic clusters

Krim, Jacqueline

North Carolina State University

For her pioneering contributions to surface science and nanotribology, especially studies of kinetic roughening and the development of quartz crystal microbalance as a major tool for probing atomic-scale friction.

Loong, Chun-Keung

Argonne National Laboratory

For pioneering work in the development of chopper spectrometers at spallation neutron sources and their exploitation for important problems in materials physics and applied materials science.

Oosterhuis, William T.

U. S. Dept. of Energy

For his steady support of Materials-Condensed Matter Physics and large national user facilities.

Wood, Colin E. C.

Office of Naval Research

For pioneering and original contributions to the crystal growth of III-V materials by Molecular Beam Epitaxy, including the discovery of RHEED oscillation, delta-doping and low temperature GaAs.

Zunger, Alex

National Renewable Energy Laboratory

For his work on the theoretical basis for first-principles electronic structure theory of materials, and for its imaginative use in the advancement of our knowledge of alloys, nanostructures and prediction of new materials.

Recruit New DMP Members

Encourage a colleague or friend to affiliate with DMP. The annual cost is \$6 added to the regular APS membership dues. As we build our membership base, we increase the visibility of the materials physics presence as a vibrant part of APS, and we also strengthen the impact of our numerous outreach efforts, such as to Washington and to related Societies. Instructions on how to become a member of DMP (or any other APS unit) appear on our homepage, or simply call (301) 209-3280 with your APS membership number (from the mailing label of a recent publication sent to you) and a credit card for the \$6/year dues. Or fax (301) 209-0867 or mail the information to APS at:

Accounting Department
The American Physical Society
One Physics Ellipse
College Park, MD 20740-3844

Visit the DMP Homepage: www.aps.org/units/dmp

Our Homepage on the World Wide Web contains all types of Divisional information, including profiles of our award winners, citations of new Fellows sponsored by DMP, and current and back issues of the DMP Newsletter with the program of Focused Sessions for the March Meeting.

NanoTech 2001

We will highlight a special symposium "NanoTech 2001" at the March Meeting in Minneapolis. NanoTech 2001 is the proposed Presidential Inter-Agency Initiative on Nanoscience, Engineering and Technology. DMP is working with the Division of Condensed Matter Physics and the APS Panel on Public Affairs to heighten awareness of this vital new program to the national agenda. Watch for more details.

Elections to the Executive Committee

The present officer list (with expiration dates that follow the March Meeting) includes: (Full addresses appear on the DMP homepage.)

Chair -	Frances Hellman fhellman@ucsd.edu	2000
Chair Elect -	Patricia Mooney mooney@watson.ibm.com	2000
Vice Chair -	Len Feldman feldman@ctrvax.vanderbilt.edu	2000
Sec./Treas. -	Samuel D. Bader bader@ANL.gov	2002
Councilor -	Howard K. Birnbaum FAX: (217) 244-2278	2000
Past Chair -	James W. Davenport daven@bnl.gov	2000

and Members at Large include:

Esther Conwell conwell@chem.chem.rochester.edu	2002
Joe Greene jegreene@uiuc.edu	2002
Max Lagally lagally@neep.engr.wisc.edu	2000
Jeff Lynn jeff.lynn@nist.gov	2002
Julia M. Phillips jmphill@sandia.gov	2000
Daniel T. Pierce pierce@epg.nist.gov	2001

According to our By-Laws, at the end of the March APS meeting, the Chair moves to Past Chair, the Chair Elect becomes Chair, and the Vice Chair becomes Chair Elect. All nominees must be DMPmembers on the June before election. The Division Councilor serves for a four-year term as liaison between the APS Council

and the DMP Executive Committee. Following each Council meeting, the Division Councilor reports to the Chair and the Secretary-Treasurer regarding Council actions that affect the status and operations of the Division. Reports are also made to the entire Executive Committee during their regularly scheduled meetings.

Ballots must be received no later than February 10, 2000. This year we will again entertain electronic balloting, along with mail and fax balloting. Please vote and return your ballot promptly to Sam Bader either by mail, or FAX (630) 252-9595, or e-mail (bader@anl.gov). Include your name on your ballot, and also sign mail or fax ballots.

And the Nominees Are...

The Nominees to fill vacancies in the year 2000 are listed below followed by biographical summaries and candidate statements.

Vice Chair (Vote for one)

Denis B. McWhan (Brookhaven National Laboratory)
Robert F. Sekerka (Carnegie Mellon University)

Councilor (Vote for one)

Bill R. Appleton (Oak Ridge National Laboratory)
Slade Cargill (Lehigh University)

Member-at-Large (Vote for two)

Mike Aziz (Harvard University)
Jerry Bernholz (North Carolina State University)
Eric Fullerton (IBM - Almaden Research Center)
David Welch (Brookhaven National Laboratory)

Meet the Candidates: Biographical Summaries/Statements

Vice-Chair:

Denis B. McWhan

Denis McWhan is the Associate Laboratory Director (ALD) for Basic Energy Science Programs at Brookhaven National Laboratory. He joined Brookhaven in 1990 after a 28 year career in the Physics Research Laboratory at Bell Laboratories and served as Chairman of the National Synchrotron Light Source for five years before becoming ALD. In 1973 he spent a sabbatical year at the CNRS in Grenoble.

McWhan's research interests include the study of phase transitions in novel systems using x-ray and neutron scattering as probes and using pressure and temperature as thermodynamic variables. Some areas of research have included: actinide and rare earth metals, itinerant antiferromagnetism in Cr, the Mott transition in transition metal oxides, fast ion conductors, charge density wave systems, graphite intercalation compounds, mixed valence materials, and magnetic multilayers. His most recent research involved the development of resonant magnetic x-ray scattering. He has published over 150 papers and is a Fellow of the American Physical Society and of the AAAS. He has served two terms on the APS Panel of Public Affairs (Chair 1999). He

was Chair of the Gordon Conference on High Pressure Physics (1976) and Chair of the Fifth International Conference on Synchrotron Radiation Instrumentation (1994). He has served on program or science advisory committees at the Stanford Synchrotron Radiation Laboratory, Cornell High Energy Synchrotron Source, the Intense Pulsed Neutron Source, and the European Synchrotron Radiation Facility. He is currently on the Program Evaluation Board of the Advanced Photon Source and on the Science Advisory Committee of the Spallation Neutron Source.

Statement: Many of the issues facing the physics community result from a failure to communicate effectively with the non-scientific community and with the Congress. The decreasing number of people choosing to pursue careers in physics will have long-term effects on the technological future of the United States. Many physics departments in small colleges are barely viable. There is a constant stream of news stories which Bob Park exposes as junk or pseudo-science each week in his *What's New* column. There is a continuing threat to the teaching of biological, cosmological and geological evolution as evidenced by the recent decision of the Kansas State Board of Education. The physics community has to become more involved in explaining what it does, why it does it, and why increased scientific literacy is important to our future - above all to explain why physics is an exciting and rewarding profession. Materials physics is a broad interdisciplinary field which in a very real sense touches the lives of everybody. Every new widget that appears on the market rests on the synthesis and control of materials. The DMP is in an ideal position to communicate with the non-scientific community. The DMP along with many other Divisions of the APS did an outstanding job at the Centennial Meeting in Atlanta presenting the importance and excitement of physics, but these efforts have to continue to grow in the coming years. I believe that the DMP has an important role to play in this arena. At the same time the field of materials physics continues to expand and to interact with larger parts of the physical sciences community. The interface between biology and physics is becoming more important as we explore various self-organizing systems and the emerging properties at multiple length and time scales in what is being called "nanoscience". The structure of focus sessions that are organized by the DMP form a natural home to explore these new interfaces, and it is one of the key features of the Division. If elected, I will work to strengthen these connections to other communities.

Robert F. Sekerka

Robert F. Sekerka is University Professor, Physics and Mathematics, at Carnegie Mellon University, where he has been a faculty member for past 30 years. He received his B.S. (1960) from the University of Pittsburgh and A.M. (1961) and Ph.D. (1965) from Harvard University (Woodrow Wilson Fellow), all in physics. He spent a sabbatical leave in 1988 with the Groupe de Physique des Solides de l'Ecole Normal Supérieure, University of Paris, France, and received a Doctor Honoris Causa from the West University of Timisoara, Romania, in 1996.

Sekerka's doctoral research, supervised by Prof. J. H. Van Vleck, dealt with the theory of magnetic resonance in rare earth garnets. During his years as a graduate student, he worked part-time

at the Westinghouse Research Laboratories and at Carnegie Mellon University where he co-developed, with W. W. Mullins, the theory of morphological stability, which eventually blossomed and became the impetus for his future research activities. In 1965, he joined the Department of Theoretical Physics of Westinghouse Research Laboratories and subsequently became manager of the Materials Growth and Properties Department there. In 1969, Sekerka became an Associate Professor in the Department of Metallurgy and Materials Science at Carnegie Mellon, was promoted to Professor in 1972, and subsequently headed that department from 1976 to 1982. From 1982 through 1991, he served as Professor of Physics and Mathematics and Dean of the Mellon College of Science, with responsibility for the departments of Biological Sciences, Chemistry, Computer Science, Mathematics and Physics. In 1991, he returned to full-time teaching and research and was named University Professor, Physics and Mathematics. During his academic career, Sekerka also functioned as associate editor of Metallurgical Transactions and the Journal of Crystal Growth and received numerous awards, including: Fellow of the American Society for Metals (1980), Philip M. McKenna Memorial Award for Outstanding Contributions to Metallurgy (1980), International Organization of Crystal Growth Frank Prize for seminal contributions to the theory of crystal growth, including the theory of morphological stability of growing crystals (1992), Fellow of the American Physical Society (1997), Fellow of the Japanese Society for the Promotion of Science (1997), and the Bruce Chalmers Award of TMS for seminal contributions to solidification processing (1998). He has been a consultant to Bell Laboratories (1976-1979), University Space Research Association and NASA (since 1975), the European Space Agency (1988), European Low Gravity Association (Grand Jury 1995) and NIST (1970-date) as well as serving on the Space Studies Board of the NRC (chairman of Committee on Microgravity Research), Solidification Committee of TMS, American Association for Crystal Growth (executive committee), and International Organization of Crystal Growth (co-vice-president). He is a member of Phi Beta Kappa, Sigma Xi, APS, IOCG, AACG, TMS, ASM and SIAM.

Professor Sekerka's research interests involve the theory and modeling of phase transformations and transport phenomena, particularly instability phenomena that occur during materials processing such as alloy solidification and crystal growth. This includes the use of perturbation theory to conduct linear stability analyses to determine the onset of instability, as well as solution of the non-linear free boundary problems that arise subsequent to morphological instability and that determine the microstructure, and hence the properties, of materials. Related work has dealt with the thermodynamics of stressed solids and the Onsager reciprocal relations for heat flow and diffusion in multi-component fluids. Sekerka's most recent research deals with formulation and solution of phase-field (diffuse interface) models that can be used to solve free boundary problems by numerical methods, and hence to study cellular and dendritic growth.

Statement: I view the DMP of the APS as having three important tasks: organizing and conducting conferences for communication among physicists, other scientists and engineers in the area of materials science; fostering forums with funding agencies and Members of Congress to enhance financial support of

materials science; and reaching out to the public to promote an understanding of materials science and the importance of materials research to the overall well-being of society.

I believe that materials research is a multi-disciplinary rather than an inter-disciplinary function, in the sense that solution of the most important materials problems requires teamwork among such experts as physicists, chemists, biologists, applied mathematicians, and engineers (e.g., metallurgical, ceramics, mechanical, electrical, civil, chemical). Usually these teams involve cooperative efforts among only a few of the above disciplines - for example, semi-conductors were developed primarily by physicists working with metallurgical and electrical engineers; biomaterials are being developed by physicists in cooperation with biologists, chemists and chemical engineers; superconductors have involved the cooperation of physicists with ceramists; and structural materials primarily require cooperation among metallurgists, ceramists, mechanical and civil engineers, although physicists have a special role to play in nanocrystalline and amorphous structural materials. I believe that the programming of DMP conference sessions, such as those that take place during the March APS meeting, should be structured not only to promote communication among physicists - which they have always done with excellence - but also along topical lines that foster productive interaction between physicists and experts in other disciplines. I would also try to make physicists to become more involved in meetings on materials science that are sponsored by other disciplines. I would plan to use my years of experience and affiliations with TMS, ASM, AACG, IOCG and SIAM to help facilitate these tasks. I would also try to seek appropriate venues to foster communication with funding agencies, congressional leaders, and members of the public. I regard this activity as a two-way street, and would try to find ways to help physicists to better understand and pay more attention to the workings of Congress and the attitudes of the general public regarding research and the people who do it. Involvement with the NMAB would be a possible mechanism to facilitate these tasks. Finally, I would seek to help materials physicists take maximum advantage of the increased rate of communication and globalization of science that is taking place via the Internet.

Councilor:

Bill R. Appleton:

Bill R. Appleton is currently Deputy Director for Science and Technology at Oak Ridge National Laboratory and an Executive Vice President of Lockheed Martin Energy Research Corporation which manages ORNL for the Department of Energy. He has had a number of other research management positions at ORNL including Associate Director for Advanced Materials, Physical, and Neutron Sciences where he managed the Chemical and Analytical Sciences, Metals and Ceramics, Physics, Research Reactors, and Solid State Divisions, and the Neutron Sciences Program. He has held several special assignments including the Advanced Neutron Source Project and the \$1.3 billion Spallation Neutron Source Project which is currently funded for completion at ORNL.

Bill received his B.S. degree from the University of Missouri, and his M.S. and Ph.D. degrees in Solid State Physics from Rutgers University. He worked at Bell Laboratories, Murray Hill, New Jersey, in the areas of ion implantation and ion-solid interactions before joining ORNL in 1968. Although he has been in research management since about 1986, he had an extended career as a research scientist prior to that. He has edited three books and published over 170 refereed journal articles, reviews, and book chapters. He is a fellow of the APS, a fellow of the American Association for the Advancement of Science, and a member of the Bomische Physikalische Gesellschaft, and the Materials Research Society. He has received several awards for his research, including the 1980 DOE Award for Outstanding Sustained Research, several R&D-100 Awards, the 1985 DOE Award for Significant New Technologies, and the Martin Marietta Energy Systems Award as 1987 Scientist of the Year. He also received the 1998 Lockheed Martin Leadership Award for his research management.

Some of Bill's professional activities include serving as past chairman of the Solid State Sciences Committee and member of the National Materials Advisory Board of the National Research Council; as a Councilor and member of the Executive Board of the APS; as past-president of what is now the Division of Materials Physics of APS; and, as a member of numerous APS committees including POPA and PPC. He was a Councilor, Vice President, and organizer of several symposia and forums for the Materials Research Society, and recipient of the 1995 Woody Award for outstanding service to MRS. He has served on numerous panels and study groups for the National Academy of Sciences and the Department of Energy.

Statement: I have had a long and enjoyable involvement with the APS, and was involved very early in the organization of what has become the DMP. Many of us at that time felt that the APS needed a more focused forum for presenting its materials research at the March meeting and better organization of the wide variety of materials topics submitted to APS meetings. These concerns evolved into the formation of what is now the focused session concept and the DMP. Because of work-related project commitments at ORNL, I have been less involved the last few years in APS activities than I would have preferred. Now my responsibilities have shifted to focus entirely on science and technology at ORNL, and I can think of nothing better than to vigorously involve myself in professional society activities. I am excited by the opportunity to serve as Councilor for DMP. It is an opportune and important time for the field of materials physics. The recent National Research Council report HCondensed Matter and Materials Physics will draw national attention to materials. The possibility of a Presidential Initiative in nanoscale science and technology is emerging. If elected, I would help frame the opportunities in materials physics and help promote increased funding for materials science and engineering.

Slade Cargill

Slade Cargill received a B.S. in Physics from the Georgia Institute of Technology in 1966 and a Ph.D. in Applied Physics from Harvard University in 1969. After serving on the faculty of the Division of Engineering and Applied Science at Yale University, Cargill became a Research Staff Member at the IBM Thomas J. Watson Research Center, where he was Senior Manager, Structure of Materials, in the Physical Sciences Department. From 1993 to 1997 he was Professor of Materials Science and Metallurgy at Columbia University. In 1997 he joined the faculty of Lehigh University as Fairchild Professor in Materials Science and Engineering. Cargill has published technical papers in the fields of amorphous materials, magnetism, semiconductors, x-ray scattering, and electron microscopy. He has been chair of the APS Division of Materials Physics, president of the Materials Research Society, and general chairman for the Conference on Magnetism and Magnetic Materials. He has served on numerous government and university advisory committees and study groups, including the NSF Materials Research Advisory Committee, the BNL Physics Department Visiting Committee, and visiting committees at Stanford University, the Colorado School of Mines, the University of California at San Diego, and Johns Hopkins University. Cargill is a Fellow of the American Physical Society.

Statement: I would like to succeed Howie Birnbaum to represent DMP on the APS Council. The Council is the top policy making body of the American Physical Society. It is important that DMP continue to be well represented in discussions and decisions about such things as APS meetings and publications, as well as APS public policy statements and appointments to APS committees. Although DMP's 2,000 members are only about 5% of the total APS membership, the DMP is one of its most vital groups, with close ties to industrial and national labs as well as to universities. We share many common interests with the Division of Condensed Matter Physics, which includes about 13% of APS membership, so I would work particularly closely with the four DCMP Councilors. APS is important for the materials physics community, and for the overall physics community in the US. I would welcome the opportunity to help guide this organization as DMP Councilor during the next four years, in close coordination with the DMP Executive committee.

Members-At-Large:

Michael J. Aziz

Michael J. Aziz earned his B.S. from Caltech in Applied Physics in 1978 and his Ph.D. from Harvard in Applied Physics in 1983. He spent two years in Oak Ridge National Laboratory as a Eugene P. Wigner Postdoctoral Fellow before returning to Harvard to join the faculty, where he is now Gordon McKay Professor of Materials Science. He has received the MRS Graduate Student Award, the IBM Faculty Development Award, the ONR Young Investigator Award, and the Presidential Young Investigator Award, and is a Fellow of the APS. His research interests involve the kinetics of mass transport in materials processing, including atomic diffusion, nonequilibrium crystal growth and dissolution, and nanoscale pattern formation and stability. He has co-organized two Focused Sessions on topics in Materials Physics and

co-organized the MRS Fall 1995 Meeting. He is currently a member of MRS Council and Executive Committee.

Statement: As a Member-At-Large, the highest priorities for my support would be high-quality programming in Materials Physics at meetings; the inclusion of new and emerging fields of research that are appropriate to fit under the materials physics "umbrella"; and the effective communication with the government and the public at large about the importance of, and the tremendous payback from, investment in materials research.

Jerzy Bernholc

Jerry Bernholc is Professor of Physics at North Carolina State University. He received his B.S. and Ph.D. Degrees from University of Lund, Sweden in 1973 and 1977, respectively. He was a Postdoctoral Fellow at IBM T.J. Watson Research Center 1978-80 and a Senior Physicist at Corporate Research Laboratories of Exxon Research and Engineering Company 1980-86.

Bernholc is working in several subfields of theoretical materials physics. In the area of semiconductors, he has contributed significantly to the theory of defects, impurities, and diffusion; semiconductor surfaces and steps; and surface optical response for use in real-time feedback control of growth processes. In the emerging field of fullerenes, contributions include predictions of structural, dynamical and electronic properties of solid C60 soon after its discovery; of the extraordinary strength of nanotubes; and of a variety of mechanically-induced nanotube transformations that result in electronic junctions suitable for nanoscale electronic devices. Another important area of research is new methodology for very large-scale electronic structure calculations that uses advanced multiscale techniques and scalable parallel algorithms.

Bernholc is a recipient of IBM's Outstanding Innovation Award, NCSU Alumni's Outstanding Research Award, and NSF's Creativity Award. He was also a Finalist for Computerworld Smithsonian Science Award. He has co-authored over 150 papers and 100 invited talks at conferences, edited two conference proceedings, given over 50 seminars and colloquia at Universities and Research Centers, and co-organized over 25 Conferences, Workshops and Symposia. Illustrations from the work of his group have appeared on the covers of *Physics Today*, *Science*, *Science News*, *Physics World*, and *Science and Engineering Indicators*. Bernholc is a Fellow of the APS and a member of MRS and Sigma Xi.

Statement: New and better materials have led to breakthroughs that have changed many aspects of our lives. There are new areas of high current interest, such as nanoscale, bio- and artificially structured materials. DMP leadership must stay at the forefront of materials research, conveying the excitement of the field to other scientists and the society at large and organizing stimulating Focused Sessions and Joint Symposia with other APS units. It is also important to effectively promote the virtues of materials research to our elected representatives, so that the funding reflects the needs and the potential of our discipline, and to increase the visibility of materials physics to the general public. Materials physics is by its very nature interdisciplinary and interactive; strong bonds can easily be developed with other

Divisions, Societies and industry, but they often need to be nurtured. There is also a growing link between the theoretical/computational and experimental sciences. An increasing number of materials properties and processes can be reliably predicted or investigated by computations and simulations, which will lead to faster progress, as fewer options need to be investigated experimentally. Broad-based interdisciplinary teams will thus become even more important in the future, and DMP's leadership should facilitate their formation.

Eric Fullerton

Eric Fullerton is currently a Research Staff Member in IBM's Almaden Research Center. He received his B.S. (1984) from Harvey Mudd College and Ph.D. (1991) in Physics from the University of California at San Diego, where he worked on the growth and characterization of metallic superlattices. He joined the magnetic films group in the Materials Science Division at Argonne National Laboratory as a post-doc, and in 1993 became a staff member specializing in the physics of coupled magnetic films. In 1997 he joined Almaden's Storage Systems and Technology division where he continues his research on the synthesis and characterization of magnetic nanostructures, both as a probe of magnetic materials in reduced dimensions and for the development of novel magnetic storage technologies. Fullerton was awarded Argonne's Exceptional Performance Award in 1996 and is a Fellow of the APS. He is a member of DMP and the Topical Group on Magnetism and its Applications where he serves on the nominating committee. He co-organized the DMP focus sessions on magnetic nanostructures and heterostructures in 1997. He presently serves on IBM's Materials Research Council and is a member of the MRS and Neutron Scattering Society of America.

Statement: New materials often provide unexpected and exciting new scientific questions as well as the impetus for emerging technologies. My hope as a Member-At-Large is to help the DMP foster these two roles of materials physics. In particular, as many technologies are approaching apparent limits, research into new materials is imperative. DMP is well positioned to highlight the recent advances in materials physics and educate the materials community on the needs of industry.

David O. Welch

David Welch is a senior materials scientist and head of the Materials and Chemical Sciences Division of the Department of Applied Science at Brookhaven National Laboratory. He received his B.S. (1960) from The University of Tennessee, S.M. (1962) from the Massachusetts Institute of Technology, and Ph.D. (1964) from the University of Pennsylvania, all in physical metallurgy. He was a NATO Postdoctoral Fellow at the United Kingdom Atomic Energy Research Establishment, Harwell (England) and was Assistant Professor of Solid State Sciences at Princeton University from 1966 to 1972. For the past 27 years he has been a member of the scientific staff at BNL, in the Physics Department and in the Department of Applied Science. He has also had visiting appointments at Oak Ridge National Laboratory, Argonne National Laboratory, and Forschungszentrum Jülich (Germany) as well as the Universities of Campinas and São Paulo (Brazil), and is Adjunct Professor of Materials Science and Engineering at

the State University of New York at Stony Brook. Welch's research interests are in the theoretical aspects of materials science, especially in the physics of crystal lattice defects and their effects on physical properties such as superconductivity and magnetism. He has served on numerous advisory and program committees and has organized a variety of focussed sessions and symposia at meetings of materials societies (including APS), especially in the area of applied of applied superconductivity.

Statement: The variety of topics covered by the DMP is wide and diverse, ranging from fundamental physics of materials to the technological development of engineered materials, and is subject to rapid changes in emphasis in response to the accelerating pace of technological change and scientific discovery. The constituency of the DMP is also diverse, ranging from students and professors at universities to research scientists and engineers in various industrial settings and national laboratories. This diversity leads to an intersection of the domains of interest of the DMP with those of other societies, such as MRS and IEEE, as well as various specialized professional conferences, and the activities of other Divisions of the APS, such as DCMP. This presents opportunities, as well as possible conflicts and competition for the attention of the materials community. As a Member-At-Large of the Executive Committee of DMP, I will work to help make the "Focussed Session" programs of DMP innovative and responsive to new directions of interest to the materials physics community and thus help to make the DMP sessions of the March Meeting a vitally important choice in the large menu of conferences available to materials scientists today. Furthermore, in an era of intense competition for available research funds and in an atmosphere of fluctuating and often diminishing interest by American students in careers in physical science and engineering, it is vitally important that DMP continue to improve the effectiveness of its efforts to educate the wider public, including the Congress, about the nature and importance to society of the wide-ranging aspects of materials physics. As a Member-At-Large of the Executive Committee I will work to help improve and accelerate our activities in this important endeavor.

2000 Adler Award Winner continued

pounds with magnetic or superconducting ground states, bismuthate superconductors, cuprate high temperature superconductors and colossal magnetoresistance manganites. Applying a wide range of experimental techniques Dr. Batlogg and his collaborators elucidated the novel electronic ground states, often tuning the key parameters through compositional variations. Recently, he also began studies of organic molecular crystals, with particular emphasis on the nature of charge transport in organic semiconductors.

Dr. Batlogg has been a Fellow of the APS since 1986, has been awarded the Bernd Matthias Prize for work on superconductors (1997) and the ETH Medal for Outstanding Dissertation (1979). He has served the APS Division of Condensed Matter as a member of the Executive Committee and in chairing the Nomination Committee. He is also a member of the MRS, AAAS and NYAS.

DMP ROSTER

Division of Materials Physics 1999-2000 Executive Committee

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Samuel D. Bader, Sec./Treas. (96-02)

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