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*TO: Members of the Division of Nuclear Physics, APS*  
*FROM: Virginia R. Brown, LLNL - Secretary-Treasurer, DNP*

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**ACCOMPANYING THIS  
NEWSLETTER:**

- A ballot and brief biographies of DNP Candidate.s Laboratories, Fifth Edition

*Future Deadlines*



- **11 Dec. 1992** - Invited abstracts to N. Benczer-Koller
- **8 Jan. 1993** - Last Day for Abstracts to N.Y. APS Office For Spring Mtg. (See Item 5.)
- **15 Jan. 1993** - DNP Election Ballot
- **1 April 1993** - Nominations for APS Fellowship (See Item 8).

**1. ELECTION OF OFFICERS AND EXECUTIVE COMMITTEE FOR 1993**

The terms of the officers and three members of the present Executive Committee will expire at the close of the

regular meeting of the Division to be held in conjunction with the APS general meeting in Washington, D.C., 12-16 April 1993. Noemie-Benczer Koller will become Chair and Lawrence S. Cardman, Walter Henning, and Robert D. McKeown will remain members of the Executive Committee. A Vice-Chair, Secretary-Treasurer, and three members of the Executive Committee are to be elected before April 1993.

This year's Nominating Committee consists of J. A. Nolen (Chair), B. C. Clark, G. T. Garvey, and S. E. Koonin. The candidates selected by the Nominating Committee are as follows:

**Vice-Chair, (one position)**

Carl B. Dover, BNL  
Harold E. Jackson, Jr., ANL

**Secretary-Treasurer**

Virginia R. Brown, LLNL

**Executive Committee (three positions)**

Akif Baha Balantekin, U. of Wisconsin at Madison

Gary R. Mitchell, N. Carolina St.  
Univ.  
Susan J. Seestrom, LANL  
Brian D. Serot, Indiana Univ.  
Johanna Stachel, SUNY at Stony  
Brook  
Stephen J. Wallace, Univ. of  
Maryland

The enclosed ballot must be signed and may be returned in the enclosed envelope with your name and address printed or signed legibly in the upper left hand corner of the envelope. It must be received by *Virginia R. Brown* on or before **15 January 1993**, in order to be counted.

If you are a DNP member, please exercise your right to vote for candidates in the upcoming DNP elections. Typically only about 900 election ballots are mailed in by members. **Your vote counts, and it is important!**

## 2. NEW DNP BYLAWS

At the DNP Executive Committee meeting held at Santa Fe, there was general consensus that the statement of the objective of the DNP should be revised to more accurately portray the present activities and breadth of the field. (The objective statement had been copied verbatim from the old bylaws.) This revised objective statement was presented at the business meeting, along with the opportunity for comments on all of the proposed revisions. The final version of the new Bylaws now proposed is identical to that distributed with the July Newsletter No. 91, except that the statement of the "Objective" now reads:

*"The objective of the Division is to assist the advancement, dissemination, and application of knowledge of nuclear physics. Nuclear physics is the study of the properties and interactions of nuclei*

*and their constituents. It extends to interdisciplinary studies of nuclear phenomena in the cosmos and the use of nuclear properties to probe fundamental forces. It includes also the development of accelerators, instrumentation, and new technologies in support of these studies."*

Since this change will require approval by the APS Council, the Division vote on accepting the new bylaws must be deferred pending that approval. It is the view of the DNP officers that this delay is preferable to returning to the older version of the "Objective". Following Council approval, the new bylaws and ratification ballot will be distributed to the membership in the next available Newsletter.



## 3. DNP MEMBERSHIP INSUFFICIENT FOR TWO DIVISION COUNCILORS

As of 1 October, the DNP / APS membership ratio was 5.8%. This was 80 members short of the 6% ratio needed to maintain two divisional councilors. If this ratio persists through December, the DNP will lose a divisional councilor and G. T. Garvey will not be replaced in 1993. As the APS membership grows, the DNP membership must grow 0.2% faster. The DNP has been having a membership drive that started at the Spring meeting in Washington D.C. As a result of this successful drive, the DNP had 200 new members by 1 October. The reason that the drive was ineffective was that 285 renewing APS members had

let their DNP membership lapse!

A reduced meeting rate for members at Santa Fe was aimed at recovering lapsed members and encouraging graduate students in Ph. D. programs to take advantage of the APS first-year-free policy. This drive produced 40 new DNP members, including 15 new student members. This was very encouraging but still falls far short of the goal, and many additional members are needed.

Members are urged to invite their colleagues, postdocs, and students to join. Graduate students at Ph.D. granting institutions receive their first year APS and DNP dues free of charge. The special application forms can be obtained through their department heads. If such forms have not been received, please request them from the APS.

Lifetime APS members are not lifetime DNP members. If you are a lifetime member, please look for the bill you may have put aside somewhere, add the DNP subunit, enclose \$5 and send it to the APS before the end of December.

If you know someone who wants to join or reinstate membership, and they are not sure how to go about it, tell them to write a letter to the APS/Membership Department, 335 East 45th Street, New York, NY 10017-3483 stating that they want to join the DNP. They should enclose a \$5 check, and to avoid mix-ups they could include their APS membership ID number. If they have not yet paid their 1992 APS bill, then they simply add the DNP as an elected subunit and include \$5 more.

#### **4. REPORT ON THE DNP FALL MEETING AT SANTA FE, NM, 14-17 OCTOBER 1992**

A well attended and highly successful DNP meeting was held at Santa Fe, NM. The registered attendance was approximately 783, which makes it the best attended DNP meeting of all time. On behalf of the membership, the Executive Committee is pleased to acknowledge the hard work, coupled with the organized and careful planning of the Local Committee consisting of J. N. Bradbury, G. T. Garvey, J. B. McClelland, R. B. Perkins, R. G. H. Robertson, and D. Strottman, with special thanks to J. N. Ginocchio (Chair) for his very important contributions to the success of this meeting. The DNP is also grateful for the invaluable contributions from the Local Conference Coordinator, Millie Saxman, and the Meeting Liaison, Kim Nguyen, both from the LANL Protocol Office, who worked for 16 months preparing for the meeting. In Santa Fe they were assisted at the registration desk by their colleagues from the Protocol Office, C. Archuleta, L. Herrera, J. Hull, and J. Stark, by Rachel Taylor from the Theoretical Division, and by Roberta Marinuzzi from LAMPF.

The meeting consisted of seven sessions of invited papers, one of which was a plenary session, described below, and 353 contributed papers divided into 32 sessions. The opening invited session on Thursday morning "Modification of Physical Processes in the Nuclear Medium" which was organized by the Local Committee was a lively and well attended session. The

other invited sessions "New Results in Electromagnetic Physics", "Mesons, Solitons, and Quarks in Nuclei", "Beta Decay and Solar Neutrinos" and "Exotic Nuclear Structure and Reactions" were all well attended as were the various contributed sessions. The Thursday afternoon DNP Plenary Session described below emphasized unity in physics by bringing together speakers from different fields that had strong connections to nuclear physics. In addition to its usual sessions, the DNP organized a joint session with the Division of History of Physics on the "Birth of the Nuclear Age 50 Years Ago, Part II: Some 1942 Preludes to Los Alamos." Part I was presented at the 1992 APS Spring Meeting held in Washington, D. C. This session featured speakers from that era who recalled their fast neutron measurements and Oppenheimer's initial direction of research efforts towards the fission and fusion bombs.

Some of the newly reported science highlights included several reports on evidence against the 17 keV neutrino. R. McKeown (Cal Tech) gave a preliminary report on the  $(e,e')$  reaction at high momentum transfer which shows no effect of color transparency, M. Johnson (LAMPF) presented a report that the parity violating non-statistical part of the longitudinal asymmetry neutron-resonance cross section implies a larger than expected parity-violating matrix element, A. K. Thompson (Harvard) and P. E. Bosted (The American University) gave reports on recently measured neutron electric and magnetic form factors by polarized electron scattering and electron inelastic scattering which rule out certain form-factor fits of the neutron, and A. Picklesimer (LANL) reported that inclusion of delta degrees of freedom does not solve the theoretical defect in the triton binding energy.

There were also reports by W. Hampel (Gallex) and J. F. Wilkerson (Sage) on solar neutrinos from Gallex and Sage which agree within statistical errors and which both show a deficit of neutrinos with respect to the standard solar model.

### *Plenary Session*

Following a theme established last year at the East Lansing meeting, the plenary session focused on problems from the intersection of nuclear physics with other fields. The theme at Santa Fe was "Many-body Problems with Connections to Nuclear Structure."

Steven Kivelson, from UCLA, opened the session with a lecture on the fractional and integer quantum Hall effects. By "bosonizing" this many-electron problem, he was able to establish a precise correspondence between the quantum behavior of the fermions and the superconductivity of a Bose gas. Vitaly Kresin, from Lawrence Livermore National Laboratory, discussed the properties of metallic clusters, aggregates of atoms where the valence electrons become delocalized, free to move in the self-consistent field generated by the cluster. The analogies with nuclear physics include magic numbers, shell and supershell structure, giant dipole resonances, and deformation. The session was concluded by a talk from George Bertsch, of Michigan State University and the University of Washington, on single-particle and collective motion in Buckyballs. The Buckyball electronic states form degenerate multiplets that are again very reminiscent of the nuclear shell model. Another similarity to nuclear physics is the concentration of dipole strength in a high-energy peak, a collective effect arising from the residual Coulomb interaction.

### *Workshops*

Three workshops were held prior to and in conjunction with the DNP meeting. Highlights of these workshops are listed below.

*“Future Directions in Physics with Hadron Beams at Higher Energies (1 to 150 GeV and Beyond)”*

For almost a decade, the nuclear science community has identified a high-intensity multi-GeV hadron accelerator as a priority tool in achieving its scientific goals. The scientific programs opened up at such a facility will greatly advance both our understanding of strongly interacting matter and our explorations of the limits of the Standard Model. The 1989 NSAC Long Range Plan strongly endorsed these goals and identified participation in KAON as a cost-effective and timely way for the American research community to pursue them. The final decision on KAON construction is a prerequisite to effective long range planning.

Clearly, interest in a multi-GeV hadron facility is not restricted to the nuclear physics community. HEPAP and the elementary particle community have stressed the scientific importance of such hadron beams in discussions of the Brookhaven National Laboratory AGS program and the new Main Injector at Fermi National Accelerator Laboratory. Given this commonality of interest, a Workshop on the Future Directions in Physics at Hadron Beam Facilities at Higher Energies was held in Santa Fe, New Mexico on 13 October 1992. The workshop, attended by 125 nuclear and particle scientists, was jointly sponsored by the Division of Nuclear Physics, BNL, FNAL, IUCF, LAMPF and TRIUMF.

The conclusion of the workshop was that it is an important time to update the scientific case for this physics, including the many new results and ideas which

have recently emerged. The unique feature in accomplishing this would be to involve both particle and nuclear physicists and to focus on the compelling physics issues. Working groups are being organized around the following physics topics: Hadron and Nuclear Dynamics, Hadron and Nuclear Spectroscopy, Spin Physics, Hadronic Weak Interactions, and Lepton Physics. These working groups will organize a larger workshop to encourage the broadest community participation, to be held at BNL in February or March 1993. The outcome of this and other possible follow-up workshops will be a white paper documenting the potential of Multi-GeV hadron beams for both nuclear and particle science.

We encourage all interested scientists to become actively involved in this process. Please contact Don Geesaman, ANL ([geesaman@anlphy](mailto:geesaman@anlphy)), or John McClelland, LANL ([john@lampf](mailto:john@lampf)) for more information.

*“Neutrons - Their Use in Nuclear Reactions and Fundamental Symmetry Studies”*

One hundred eighty participants registered for this workshop. The morning session was devoted to fundamental symmetry studies using neutrons. The first speakers discussed the lifetime and beta decay of neutrons as a means to determine the weak interaction coupling constants. Electric dipole measurements were described as a means to search for time reversal violations. A measurement of the Aharonov-Bohm effect was presented as a study of fundamental quantum mechanics with neutrons. Use of neutrons as a tool to search for physics beyond the standard model was discussed in the final morning talk.

The afternoon session was devoted to nuclear reactions with

neutrons. Use of s and p wave resonance interference was described as a way to enhance the parity non-conserving effect in nuclei. Charge-exchange reactions were presented as a way to get a handle on the weak interaction coupling constants in the nuclear medium. Other talks discussed the effects of neutron scattering experiments on few-nucleon system calculations, determination of the neutron electric polarizability, and the importance of neutron cross-section measurements on the understanding of the r- and s- processes.

*"New Vistas in Physics with High-Energy Pion Beams"*

More than one hundred participants discussed the exciting opportunities which would be made available by improved experimental capability in this area of physics. The topics discussed included the strange-particle nuclear physics of hypernuclear spectroscopy and weak decays. Little is known of the spin-dependence or the underlying dynamics in these reactions or of the hyperon-nucleon interaction itself. New sensitivities to hadron dynamics such as short-range nucleon correlations, exchange currents, and modifications of baryon resonances within the nuclear medium were discussed in connection with high-energy pion-nucleus interactions. There are already indications of possible exotic effects at the higher range of LAMPF in this area. Studies of the decays of the eta, produced copiously at high-energy/intensity pion facilities, offer new tests of basic symmetries such as C, T, and CP invariance, as well as a test of the unitarity of the CKM matrix in pion beta decay. The subject of baryon resonances is of fundamental importance to QCD. This is also expected to be a major program at

CEBAF in the future. The importance of pion-nucleon interactions and its connections with the electroproduction of these resonances was discussed as a crucial element of this pursuit.

The prospects for the future of this field of research were also discussed. Much of this physics was highlighted as an important part of the future of nuclear physics in the NSAC Long Range Plan. Examples of relevant future facilities include KAON, AHF, and PILAC. Each offered the possibility of providing high-intensity ( $10^9 \pi^+ / \text{sec}$ ), high-resolution (200 keV) pion beams near 1 GeV. The present climate of U.S. funding in support of these activities threatens to undercut many, if not all, of these initiatives. Much of the existing data come from lower-intensity facilities such as BNL and KEK. Several speakers suggested investing more into these existing facilities to accomplish some parts of this program. In the end, however, many of the research topics discussed will be intensity limited and, therefore, depend on the qualitative improvements offered by the new initiatives.

Proceedings of this workshop will be published through World Scientific later in the year.

*Town Meeting, Wick Haxton*

The "Town Meeting" was held on Friday afternoon, October 16, in the Sweeney Convention Center. An estimated 450 people attended, despite the paucity of cheerful news from inside the Beltway.

The meeting began with a plea by Wick Haxton for non-DNP members to join the Division soon. As APS Council representation is quantized in units of

3% of the APS membership, the DNP's present enrollment (5.8%) places the Division in jeopardy of losing one of its two councilor positions. It was pointed out that many APS members, including some life members, intend to belong to the DNP, but neglect to mark the appropriate box (and pay their \$5 dues) when annually renewing their APS membership. It was also stressed that students can join both the APS and the DNP free in the first year.

The slate of candidates for DNP offices and the Executive Committee were announced (See Item 1).

Noemie Koller reported that the "Physics News 1992" Committee had completed its work, forwarding five articles for inclusion in this year's publication (See Item 10). As Program Committee chair, she described the Committee's deliberations on invited sessions for the Washington APS meeting (See Item 5). The Program Committee hopes to find space for a special Washington session on the importance of nuclear physics to society. There is a sense that the DNP must do more to publicize how our research leads to products and advances that have important social and economic impact. Noemie also described the state of preparations for the 1993 Divisional meeting in Asilomar (See Item 6).

Jim Ball then described the status of the Division's new bylaws. The long process of revising the bylaws to conform to APS guidelines is nearing closure. The revisions will be submitted for ratification to the membership after approval by APS Council (See Item 2).

Dick Silbar briefly described a new electronic bulletin board for theoretical nuclear physics preprints that he and others had recently started

at Los Alamos. The audience was encouraged to subscribe and to use the service for fast and economical preprint communications (See Item 18).

Gary Crawley described a Division effort to produce a brochure that will describe our field and emphasize its importance to our nation's competitiveness. A science writer, Donn Forbes, has been hired to work with DNP members on this project. The hope is to have the brochure on hand at the time of the Washington meeting, where it can be publicized (See Item 11). He also reminded the membership of the existence of an electronic newsletter, DNP\_NEWSNET, which is sent out monthly by the Nuclear Science Resource Committee of the DNP. Any DNP member wishing to receive the DNP\_NEWSNET should send an e-mail message to Gary Crawley at [crawley@msunscl.bitnet](mailto:crawley@msunscl.bitnet).

Sam Austin reported on the status of Physical Review C, and particularly on the experiment to waive page charges for manuscripts submitted electronically. This appears to be a success, since submissions have increased by about 20% since the policy took effect.

Jack Lightbody presented a brief summary of the NSF budget situation. The overall research budget is down (-0.7%) from last year's level, a gloomy start. When the division among directorates occurs, Physics historically has not done well, so one might anticipate a reduction in actual dollars of 5% or more from FY92 levels. In addition, a floor for support of LIGO was approved by Congress, opening up the possibility of a further squeeze on NSF and Physics Directorate budgets. Jack said that, in view of the budget outlook, reviews of both university laboratories and the two

national user facilities would be undertaken in the coming months. Dennis Kovar then summarized the outlook for the DOE budget. An unusual set of circumstances led to the removal of \$54.4M from the DOE's Nuclear Physics Division, along with the responsibility for running LAMPF and supporting several associated university groups. Defense Programs was then asked to operate LAMPF, with \$64.4M of its budget set aside for that purpose. It is not known whether this situation will continue past FY93. The funding for the Bevelac will allow it to operate through January, 1993. Nuclear physics will also have to bear its portion (\$9M) of a \$30M general science tax for "unobligated costs." The cuts will be apportioned between capital projects (\$5M), CEBAF and RHIC construction (\$2.4M), and operations (\$1.6M). Both agency representatives stressed that the political terrain was changing for the worse because of Congressional concern about competitiveness, technology transfer, the quality of teaching, and conflicts of interests within our universities.

Ernest Moniz, the new NSAC Chair, discussed plans for NSAC to respond to the FY93 budget difficulties, including an NSAC review of the facilities at Michigan State and Indiana. He also expressed his commitment to and enthusiasm for continued cooperation between NSAC and the DNP.

Lee Riedinger reported for the Resources Committee on the DOE Isotope Program. The attempt to make the program self sufficient has failed, prompting the DOE to hire an outside consulting firm to find a workable plan for restoring solvency. Community members are worried by the continued depletion of inventory and by the

excessive cost for leasing isotopes and for target fabrication (See Item 14).

Peter Barnes summarized the Santa Fe Workshop on the Future of Hadron Beam Facilities, which was held on the Tuesday before the Divisional meeting and attracted 125 participants. Sponsored by five laboratories (Los Alamos, Brookhaven, TRIUMF, Fermilab, and IUCF) and the DNP, the meeting addressed the future needs of the hadron physics community. A follow-up workshop will be held this spring at BNL (See Item 4).

### *Reception and Banquet*

A very pleasant reception and banquet held on Friday evening were attended by 384 people. The banquet speaker, W. J. Whatley, spoke about a newly discovered pre-historical site about sixty miles northwest of Santa Fe near the Jemez Pueblo. This magnificent archaeological site, Kwastiyukwa, is one of the largest prehistoric architectural structures located in what is now the United States. Mr. Whatley described in colorful detail his investigation of the site using non-destructive archaeological research techniques which use modern technologies such as satellite sensing and computer modeling combined with hot air balloon photography and primitive surveying techniques. The many questions after his talk attest to the enthusiasm of the audience to the speaker and his subject.

### **5. SPRING APS MEETING, WASHINGTON, D.C., 12-15 APRIL 1993**

The Division of Nuclear Physics will organize five sessions of invited papers for the Spring meeting. Speakers for two or three of these

sessions will be selected by vote of the Program Committee from nominations which were submitted to Noemie Benczer-Koller by the 23 October deadline. Included in the voted sessions will be the Bonner Prize talk.

Speakers for the other two sessions are being arranged by subcommittees on topics selected at the Santa Fe Program Committee meeting. One session on "Open Questions in Nuclear Structure Physics" is being organized by J. A. Cizewski (Rutgers), R. R. Betts (ANL), J. D. Garrett (ORNL), and G. Wozniak (LBL). A second session on "Dense Matter and the Equation of State" organized by J. Stachel (SUNY@Stony Brook), G. Crawley (MSU), and G. J. Wozniak (LBL).

In addition to the usual five invited sessions, the DNP Program Committee is participating in four or five cooperative or joint sessions with other APS subunits participating in the spring meeting. One session is joint with the Few Body Topical Group and is being organized by J. A. Carlson (LANL). A second joint session is being planned with the Division of Astrophysics organized by G. Mathews (LLNL) and A. E. Champagne (Univ. of North Carolina). A third joint session is being planned with the Division of Particles and Fields by W. C. Haxton (Univ. of Washington) and D. F. Geesaman (ANL). A fourth session with the Topical Group on Precision Measurements is being organized by W. Haxton and B. Heckel. A possible fifth session with the theme "Applications in Nuclear Physics" is being organized by N. Benczer-Koller (Rutgers) and G. M. Crawley (MSU). These sessions are all being coordinated by the DNP Program Chair, N. Benczer-Koller.

## 6. DNP FALL MEETING AT THE ASILOMAR CONFERENCE CENTER IN PACIFIC GROVE, CA, 20-23 OCTOBER 1993

The Annual Fall Meeting of the Division of Nuclear Physics, including workshops, will be held 20-23 October 1993 at the Asilomar Conference Center in Pacific Grove, California. The Asilomar Conference Center is a unit of the California State Park System and occupies 105 secluded acres of pines and dunes along the ocean's edge of the Monterey Peninsula. Asilomar is noted for the beauty of its natural setting -- its wind-twisted trees, the rolling, shifting dunes, and the mighty Pacific breakers beating against the shore. It is also close to other attractions of the Monterey Peninsula, such as the 17-Mile Drive; Pt. Lobos; historical points of interest in Monterey including Fisherman's Wharf and Cannery Row (now the home of the Monterey Aquarium); quaint shops; the Carmel Mission; Big Sur State Park; and the Butterfly Trees in Pacific Grove.

The Local Committee consists of Gordon Wozniak, Chair (LBL), John Becker (LLNL), Virginia Brown (LLNL), Dan Cebra (U.C. Davis), Kevin Lesko (LBL), and Mike Nitschke (LBL).

## 7. FUTURE DNP FALL MEETINGS

The present schedule for fall meetings is as follows:

|       |                                 |               |
|-------|---------------------------------|---------------|
| 1993  | October 20-23                   | Asilomar, CA  |
| 1994* | October (Site to be determined) |               |
| 1995  | October                         | Indiana Univ. |

\*The 1994 fall meeting scheduled to be held at Tucson, Arizona has been

canceled. Alternate sites are under consideration.

The dates include the Wednesday "workshops", which are held in conjunction with the DNP fall meetings. Holding "workshops" at the DNP fall meetings is a tradition that began with the 1986 Vancouver meeting. All meeting attendees are welcome and encouraged to come. It has been the intention of the DNP Executive Committees that these "workshops" should have broad appeal, with introductory pedagogical talks for the benefit of those who have come primarily for the DNP meeting but want to take the opportunity to learn about a new area of nuclear physics.

## **8. NOMINATIONS FOR APS FELLOWSHIP**

The procedure for the election of a Member to Fellowship is outlined in the Membership Directory of the APS under "Constitution and Bylaws." A nomination form, which cites the principal contributions of the candidates to physics, should be prepared and signed by two members of the society. The total number of members who could be elected to Fellowship in a given year is one half of one percent of the total APS membership.

The DNP deadline is normally *1 April*. Nomination forms are available from Mrs. Maximilla Cassell (The American Physical Society, 335 East 45th Street, New York, NY 10017). Completed forms should be returned to Dr. N. R. Werthamer at the same address.

The 1993 DNP Fellowship Committee is comprised of G. M. Crawley (Chair), E. J. Moniz, and V. E. Viola. The Fellowship Committee reviews the nominations for APS fellowship referred to the DNP and

recommends a slate of candidates which is forwarded to the DNP Executive Committee and then to APS Council for approval.

It is particularly important for nominators to ensure that the cases which they prepare for the Fellowship Committee are well documented. In addition to that requested on the nomination form, information such as lists of invited talks, awards, professional activities, committee services, and participation in organization of conferences is very helpful. Inclusion of a complete publication list is highly recommended.

The DNP has adopted the following Fellowship Criteria Guidelines. To be chosen as a Fellow, an APS member should have a record of excellence in research that has been sustained over several years, and have done at least one major, original work that has influenced his/her specialty in a significant way.

The list of APS Fellows (by APS subunit) elected in a given year is published in the March issue of APS News. The names of newly elected DNP Fellows are published in the February newsletter and the awards are presented at the DNP Business meeting of the Spring APS meeting.

## **9. BONNER-PRIZE FUNDING DEFICIT**

The Tom W. Bonner Prize, which consists of \$5000 and a certificate citing the contributions made by the recipient, is awarded annually. On June 30, 1989, the fund balance stood at \$8,142, enough for one more prize in 1990. The prize was replenished in 1990 under the direction of R. A. Eisenstein. The contributors included private corporations, universities and laboratories, and individuals. A list of contributors was published in the May

1990 Newsletter. On June 30, 1992, the fund balance was \$83,499. This is about \$17,000 short of what is recommended by the APS to keep the fund self sustaining. If you missed the opportunity to contribute during the 1990 fund raising drive, now is an opportune time to make that contribution. Please make out your check to the DNP Bonner Prize Fund and send it to V. R. Brown, DNP Secretary-Treasurer, LLNL, L-288, Livermore, CA 94550.

#### 10. "PHYSICS NEWS IN 92", N. BENCZER-KOLLER

The DNP Physics News Committee (N. Benczer-Koller (Chair), Douglas Beck, Rick Casten, Stuart Freedman, Glenn Young, and Brian Serot) has chosen the following topics and writers of developments in Nuclear Physics that have had major impact in 1992: Double Beta Decay by M. Moe, Identical Rotational Bands by Rick Casten, the Pion Field of the Nucleon by H-O. Meyer, Solar Neutrinos: the Gallium Detector by R. L. Hahn and Nuclear Halos by B. M. Sherrill and G. Bertsch.

Physics News is edited by Phillip Schewe of the AIP and is widely distributed to Congressional staffers and others interested in science progress and policy. Physics News 1992 will be published in the March 1993 issue of APS NEWS and will be distributed to the American Physical Society Membership.

#### 11. NUCLEAR SCIENCE BROCHURE

The DNP Executive Committee is preparing a "brochure for the non-practitioner" on nuclear science. The brochure will be used to convey the excitement of nuclear science and its uses to our colleagues in other fields as

well as to Congress and the funding agencies. Gary Crawley has agreed to coordinate the effort. The science will be adapted from the Long Range Plan, but it will be written at a simpler level and with more emphasis on applications. Suggestions for topics or volunteer contributions should be sent to "crawley@msunscl.bitnet" as soon as possible.

#### 12. BUDGET UPDATE FROM THE NUCLEAR SCIENCE RESOURCES COMMITTEE, L. L. RIEDINGER, JR. AND G. M. CRAWLEY

The FY93 appropriations bills affecting nuclear physics in both the Department of Energy and the National Science Foundation have been passed and signed into law.

*Department of Energy:*

The administration request for DOE nuclear physics was \$363.4 million, representing a 2.6% increase over FY92. The appropriated amount is now \$309.0 M, less a share of a \$30 M "general reduction" or "use of unobligated balances" that the Congress attached to the General Science budget (nuclear physics, high energy physics, and SSC). The nuclear physics share of this \$30 M reduction is \$9 M, bringing the budget down to \$300.0 M.

The \$54.4 M difference in the DOE nuclear physics budget (309.0 compared to 363.4) occurs because of a strange budget action in moving all of the LAMPF budget from the Energy Research (ER) part of the vast DOE budget to the Defense Programs (DP) portion. This amount represents the sum of the LAMPF research

budget (\$8.56 M), its operating budget (\$43.90 M), and its portion of the capital equipment pot (\$2.05 M). The Office of Nuclear Physics will still manage the LAMPF programs, with the Office of Defense Programs maintaining final signature authority. In addition to this earmarking of \$54.4 M of DP funds, an additional \$11 M of DP money has been allocated for improving the LAMPF condition or operations.

Why was this budget maneuver done? While there is no official answer to this question, speculation relates this action to the need to find additional funds in the Senate appropriations markup for the SSC. Recall that the House had zeroed the SSC in its Energy and Water Appropriations Bill, but the Senate was intent on restoring this to their budget. Moving LAMPF from ER to DP left in ER an "extra" \$54.4 M which could then be directed to the SSC. So, what does this mean for ER, nuclear science, and LAMPF in next year's DOE budget? No one knows yet. One can hope that LAMPF and its funds will be moved from DP back to ER in the FY94 appropriations bill. For the last five years, there has been a self-imposed congressional moratorium on moving funds from the defense to the civilian part of the budget. This barrier is officially removed in FY94, which could then allow the movement of DP funds to the nuclear physics budget.

Concerning the general reduction of \$9 M for the DOE nuclear physics budget, the current plan is to take (a) \$5 M of this from Capital Equipment - \$2 M from Gammasphere (down from \$5 M), \$2 M from CEBAF (down from \$11.1 M), and \$1 M from Brookhaven AGS (down from \$3.3 M), (b) \$2.4 M from

construction - \$1 M from CEBAF (down from \$33 M), and \$1.4 M from RHIC (down from \$71.4 M), and (c) \$1.6 M from the research program.

*National Science Foundation:*

The administration request for the NSF was \$3.03 billion, up by 17.7% over FY92, which would have translated into perhaps an 8% increase for nuclear physics. The appropriated amount is actually \$2.733 B, representing a 6.3% increase. The bad news of this story is that the budget for Research and Related Activities is programmed to decline by 0.7%, from \$1872 M in FY92 to \$1859 M this year. The details are given in the following table, which includes the numbers in the House bill, the Senate bill, and the final Conference committee (which became law):

| NSF Program       | FY92   | FY93 Request | House  | Senate | Conf.  |
|-------------------|--------|--------------|--------|--------|--------|
| Research          | 1872.0 | 2212.0       | 1879.0 | 1859.0 | 1859.0 |
| Education         | 465.0  | 479.0        | 465.0  | 510.0  | 487.0  |
| Inst/Facilities   | 33.0   | 33.0         | 33.0   | 50.0   | 50.0   |
| Antarctic         | 88.0   | 163.0        | 163.0  | 143.0  | 158.0  |
| Antarc Logistics  | NA     | NA           | 63.4   | 0.0    | 63.4   |
| Def. Trainees     | NA     | NA           | 0.0    | 55.0   | 0.0    |
| Sal. and Exp.     | 109.0  | 135.0        | 115.5  | 111.0  | 111.0  |
| Crit. Tech. Inst. | NA     | 1.0          | 1.0    | 1.0    | 1.0    |
| Off. Insp. Gen.   | 3.5    | 4.0          | 3.6    | 3.8    | 3.7    |
| Total             | 2570.5 | 3027.0       | 2723.5 | 2732.8 | 2733.1 |

There are many questions about the reasons for the decline in the Research budget overall and the fate of the current-year nuclear physics budget. A decline in the FY92 \$44.8 M for

nuclear physics seems certain this year; the question is how severe the cut will be as the overall Research budget is allocated within the NSF. One major uncertainty is how to handle the Congressional mandate that the funds for construction of LIGO (Laser Interferometer Gravitational Wave Observatory) increase from \$16 M last year to \$38 M this year. It is not known if this increase will adversely affect the Physics budget (\$138 M in FY92). With a cut in the nuclear physics program certain (magnitude unknown), the NSF is about to embark on a general review of all of its nuclear physics facilities.

As these NSF budget uncertainties abound, a strongly political debate about redefining the goals of the foundation is taking place. The appropriations committees in Congress called for a movement of the NSF to address far more the problems of society and industry (i.e. directed research). NSF Director Walter Massey has publicly called for a change in the NSF charter to allow such an evolution in its research mission. The National Science Board has established a blue-ribbon panel to study this issue. This is a rapidly moving process (the commission's report is due at the end of November) that could lead to a broadening of the NSF research program, hopefully with more funds from Congress. The impact on basic research programs (e.g. nuclear physics) is impossible to gauge at this time. We all must stay abreast of this extremely important issue.

### **13. NSAC REPORT, WICK HAXTON**

An informational NSAC meeting was held Tuesday, October 13, prior to the Santa Fe DNP meeting. This summary will be brief because most of the presentations were repeated at the Town Meeting, and thus are summarized under Item 4..

David Hendrie (DOE) and Jack Lightbody (NSF) described the budget outlook for FY93. The situation facing the NSF, as described in Item 12, is bleaker than any of the scenarios considered by the Schiffer Committee. Lightbody stated that the NSF will conduct a full review of the nuclear physics program, including an NSAC review of the two NSF national user facilities and a panel review of the eight university laboratories. The situation is sufficiently serious that an overall belt tightening is not feasible: weaker programs will have to be cut. While the DOE problems in FY93 are less severe, the outlook for FY94 is extraordinarily uncertain due to the FY93 reclassification of LAMPF under Defense Programs.

Bob Eisenstein, Director of the NSF Physics Division, discussed the ways the changing political climate might affect future support for basic science. Congress appears to be greatly concerned by the competitiveness issue, and may be inclined to place some of the blame on basic science. The overhead scandal, various fraud cases, the concern that university researchers are neglecting teaching, and upcoming conflict-of-interest hearings are hurting public relations. Eisenstein stressed that physicists must publicize their positive contributions to society if they hope to maintain the support of Congress. Many of these themes were also stressed by Karl Erb of OSTP.

Gary Crawley described one public relations effort by the DNP, the

preparation of a brochure on nuclear physics and society.

The meeting concluded with a summary by Don Geesaman of the Workshop on the Future of Hadron beam Facilities. Ernest Moniz, NSAC chairman, noted NSAC's position in support of KAON.

#### **14. ENRICHED ISOTOPE REPORT, L. L. RIEDINGER, JR.**

The problems of the DOE Isotope Production and Distribution (IP&D) program continue to get worse and are near the point where a complete change in the "financial self-sufficiency" philosophy may be forced. The financial shortcomings of the isotope program have been highlighted in a series of recent studies, including a February workshop at the National Academy of Sciences, a June release of a strongly critical report by the Government Accounting Office, and an August hearing led by Congressman Mike Synar, chairman of a subcommittee of the House Government Operations Committee. The sad state of the program has led DOE to hire a consulting firm (Arthur Anderson and Company) to perform a study of what needs to be done to restore financial solvency.

In 1989 the isotope program was moved to the Office of Nuclear Energy within DOE, appropriated funds disappeared, and the method of funding was drastically changed. Instead of receiving a dependable annual operating budget of \$2 - 5 M, to be supplemented by revenues from sales, the program was directed to become self sufficient with all income coming from sales. A \$16 M revolving fund was established, to be used and replenished each year. Since the annual sales of the isotope

program had been at the \$15 M level previously, there was official expectation that the program could survive without the subsidy of appropriated funds that existed previously. This has not happened, as the program has had sales below the magic \$16 M level each year since. In fact, the \$16 M pot is now essentially empty, which necessitated establishing a line of credit within DOE of up to \$8.5 M. This loan should keep the program operating throughout FY93, while DOE leaders wait for the report of the consulting firm and decide how to restructure the program. There seems to be wide agreement that the experiment of financial self-sufficiency has failed and that in the future there will have to be a combination of sales revenue and appropriated funds to keep the program solvent. The GAO report attributes this failure to (a) high uncontrollable operating costs (e.g. the Oak Ridge calutrons are old and expensive to operate, especially with the new philosophy of environmental remediation), (b) lack of capital funding to improve or replace equipment, and (c) competition from foreign suppliers, most of which are heavily subsidized by their governments.

The difficulties of nuclear physicists continue. The Oak Ridge calutrons have been sitting in standby mode since August of 1991. Isotopes from the Research Materials Collection (the loan pool) are being sold as the normal sales inventory becomes depleted, with more voids in the combined inventory occurring with time. The cost of leasing RMC isotopes for non-destructive experiments remains very high. The difficulty of getting targets fabricated continues. It is clear that these problems will only get worse until officials in DOE make a change in a

program that has so much importance to both basic research and commercial communities. The needs of these two types of customers are very different, the former requiring small quantities of a wide variety of enriched isotopes, the latter needing large quantities of, for example, isotopes of importance in the medical field. It is especially in the context of the former that a strict "business" approach has extreme difficulties.

#### 15. NATIONAL INSTITUTE FOR NUCLEAR THEORY, W. C. HAXTON

The 1993 programs for the Institute for Nuclear Theory are:

"Nuclear Physics in Atoms and Molecules"

February 15 - May 28

**Organizers:**

Eugen Merzbacher (*ulyse@unc*, (919) 962-3021)

Jim Friar (*friar@lampf*, (505) 667-6184)

Berndt Muller (*muller@phy.duke.edu*, (919) 684-8195)

"Phenomenology and Lattice QCD"

June 21 - September 3

**Organizers:**

Steve Sharpe

(*sharp@landau.phys.washington.edu*, (206)685-2395)

Gregory Kilcup (*kilcup@ohstpy*, (614) 292-3224)

John Negele (*negele@mitlns*, (617) 253-7077)

"Large Amplitude Collective Motion"

October 4 - December 17

**Organizers:**

Aurel Bulgac (*bulgac@msunscl*, (517) 353-5964)

George Bertsch (*bertsch@uwaphast*, (206) 543-2895)

The first two programs are nearly full. If you are interested in attending any of the 1993 programs, please contact one of the organizers as soon as possible. The summer program on QCD will include a two-week summer school, June 21-July 2. Students and young researchers interested in attending should apply now.

The INT's National Advisory Committee met in August to plan future programs. The proposed 1994 schedule includes:

"Solar Neutrinos and other Neutrino Astrophysics"

**Spring Organizers:** A. Baha Balantekin

"Applications of Chaos in Many-Body Quantum Physics"

**Summer Organizers:** Eric Heller and Steve Tomsovic

"Hot and Dense Nuclear Matter"

**Fall Organizers:** Ulrich Mosel and Jorgen Randrup

Additional organizers made be added to one or more of these programs. Additional information on these programs and on 1993 and 1994 workshops will be provided in the fall INT newsletter and poster.

#### 16. THE EUROPEAN PHYSICAL SOCIETY

The European Physical Society is a conglomeration of national societies and therefore has a double structure: multinational and professional. In the EPS Council there are representatives of both the national societies and the boards that conduct the business of the various professional divisions. The EPS was conceived as encompassing Europe "from the Atlantic to the Urals" but in the past practically all the activity of the EPS was concentrated in the West. This situation has now changed.

Participation of physicists and societies from Eastern nations is increasing and is indeed seen as an urgent matter of policy by the EPS.

The nuclear Physics Board, like other boards, is mainly concerned with conferences; approval and organization at various levels of involvement. The matter of East-West rapprochement has always had a special significance for our board because of the high level of activity, in quality and quantity, in nuclear physics in Eastern Europe. We have, since the mid 80's, co-opted physicist from the East to join the Board and in the last two years we have encouraged and promoted the use of East European venues for EPS nuclear physics conferences. We are trying to ease the way for East Europeans to attend conferences held in the West.

The recent establishment of NuPECC (Nuclear Physics European Collaboration Committee) was an important development for the nuclear physics community in Europe. NuPECC, an associated committee of the European Science Foundation, was set up to "provide a forum for the discussion of the provision of future facilities and instrumentation; give advice, in general, on the development of Nuclear Physics". NuPECC has issued in November 1991 a report: Nuclear Physics in Europe: Opportunities and Perspectives, which aims at setting the stage and delineating the broad outlines of nuclear physics research in Europe in the future, in particular as regards large and multinational new facilities. Our board is linked to NuPECC through an exchange of observers at respective meetings. Together with NuPECC we edit the journal Nuclear Physics News.

Our board has had on various occasions links with the Nuclear Physics Division of the APS, mostly informal. We would appreciate any opportunity to

extend and formalize these links in the future.

Gvirol Golding, Chairman  
of the Nuclear  
Physics Board, EPS

#### 17. **DIRECTORY OF NUCLEAR PHYSICS LABORATORIES, FIFTH EDITION**

Included with this newsletter is the fifth edition of the "Directory of Nuclear Physics Laboratories." The reasons for updating the Directory were to include additional laboratories, make corrections in existing listings, and to include computer mailing addresses such as bitnet. This Directory was produced under the sponsorship of the DNP/APS and the National Superconducting Cyclotron Laboratory, Michigan State University and was coordinated by S. Conroy. It was printed by the National Nuclear Data Center, Brookhaven National Laboratory, where the computer code resides. The main costs of the directories and certain out-of-pocket expenses were absorbed by the DNP. Manpower costs were donated by Michigan State University, Brookhaven National Laboratory, and the DNP. S. Conroy and S. M. Austin (MSU) and J. Tuli (BNL) were principal contributors. A special thanks is due to the various people and institutions who contributed to this effort.

#### 18. **AN ELECTRONIC REPOSITORY FOR NUCLEAR THEORY PREPRINTS**

An electronic nuclear physics theory preprint repository has been established at internet address *nucl-th@xxx.lanl.gov*, effective October 1, 1992. Subscribers to the nucl-th mailing list will receive, through e-mail, regular announcements of recent submissions to the repository. They can retrieve a desired preprint by a simple 'get preprint-number' in the

subject line of an e-mail message to *nucl-th@xxx.lanl.gov*. Likewise, one can submit preprints to the repository for other subscribers to access.

This repository is a clone of the high-energy bulletin boards implemented by Paul Ginsparg (T8, LANL). We expect, after a trial period, to also initiate a nucl-ex repository for experimental nuclear physics preprints.

To subscribe to this service, send an e-mail message to *nucl-th@xxx.lanl.gov* with the subject-line 'Subject: subscribe yourfirstname yourlastname' where 'yourfirstname yourlastname' can have any number of words and initials. Help is available by sending a message with subject line 'Subject: help'.

Dick Silbar  
(*silbar@whistler.lanl.gov*)  
Joe Carlson  
(*carlson@qmc.lanl.gov*)  
Terry Goldman  
(*goldman@hotelcal.lanl.gov*) T-5, Medium Energy Nuclear Theory, LANL

## 19. ANNUAL REVIEWS OF NUCLEAR AND PARTICLE SCIENCE

The Division has continued the agreement with Annual Reviews, Inc., which will enable DNP members to obtain copies of the "Annual Review of Nuclear and Particle Science" at a 30% discount when purchased through the DNP Secretary-Treasurer, Virginia R. Brown, Lawrence Livermore National Laboratory, P. O. Box 808, L-288, Livermore, CA 94550.

**1992 Prices:** In what follows the price for U.S.A. is before the slash; the price for "Other Countries, including Canada" follows the slash. Volumes 12-41 are \$55/\$60 retail and \$39/\$42 for

DNP members. Volume 42 (available Dec. 1992) will be \$59/\$64 retail and \$42/\$45 for DNP members.

Other Annual Reviews are also available. Payment (Payable to the Division of Nuclear Physics-APS) must accompany your order and must be in U.S. funds. California orders must add applicable sales tax. *Since 1 January 1991, all orders shipped to Canada require the addition of a 7% General Sales Tax.*

## 20. FUTURE CONFERENCES

Organizers of future conferences should contact the DNP Secretary-Treasurer if they wish their conferences listed in DNP newsletters.

*"Second International Workshop on Time Reversal Invariance and Parity Violation in Neutron Scattering and Reactions"* to be held 4-7 May 1993 at Dubna, Russia, and jointly sponsored by TUNL, LANL and JINR. [For further information contact Yu. B Popov at Dubna (*ypopov@lnp13.jinr.dubna.su*), or C.R.Gould at TUNL, bitnet: *gould@tunl* or J.D.Bowman at LANL bitnet: *bowman@lampf*]

*"The International Workshop on Polarized Ion Sources and Polarized Gas Targets,"* to be held 23-27 May 1993, at the University of Wisconsin, Madison, Wisconsin. [For further information contact: Prof. L.W. Anderson or Prof. W. Haerberli, Department of Physics, University of Wisconsin, 1150 University Avenue, Madison, Wisconsin 53706, phone: (608) 262-6555/8962, fax: (608) 262-3598, email: *bitnet%madspin@wiscnuc.*]

*"Third International Conference on Radioactive Nuclear Beams,"* to be held 24-27 May 1993, at Michigan State University. [For further information contact: David J. Morrissey, National Superconducting Cyclotron Lab,

Michigan State University, East Lansing, Michigan 48824, phone: (517) 355-9554, fax: (517) 353-5967, internet: *morrissey@cycvox.nsl.msu.edu*, bitnet: *morrissey@msunscl.*]

*"6th Annual Summer School in Nuclear Physics Research"*, to be held 11-24 July 1993, at Raleigh, North Carolina, USA, B. Müller and R. Roberson, Organizers. [For further information contact Philip J. Siemens, OSU Physics Department, 301 Weniger Hall, Corvallis, OR 97331-6507, phone (503) 737-1697, fax - 1683, e-mail: *"siemens@physics.orst.edu"*].

*"Gordon Research Conference on QCD in Nuclear Physics,"* to be held July 26-30, 1993, at the Tilton School, Tilton, New Hampshire. [For further information contact R. D. McKeown, 106-38 Kellogg, Caltech, Pasadena, CA 91125, phone: (818) 356-4316, fax: (818) 564-8708, bitnet: *bmck@caltech.*]

*"8th International Symposium, on Capture Gamma-Ray Spectroscopy and Related Topics,"* to be held 20-24 September 1993, in Fribourg, Switzerland. [For further information contact: J. Kern, Physics Department University, CH-1700 Fribourg, Switzerland, phone: (41) (37) 826233, fax: (41) (37) 826519, bitnet: *kern@cfruni52.*

## 1993 DNP BIOGRAPHIES

### *Vice-Chair*

**CARL B. DOVER** -- Staff Scientist, Brookhaven National Laboratory (1971--present, since 1982 as Senior Physicist); Group Leader of Nuclear Theory (1990--present); Adjunct Professor, Yale University (1991--present); B.S. (1963) and Ph.D. (1967) in Physics from the Massachusetts Institute of Technology; Scientific Assistant, University of Heidelberg (1967--70); Charge de

Recherches, Institute of Nuclear Physics, University of Paris at Orsay (1970--71); visiting Professor at the University of Pennsylvania and Princeton University (1978--79); visiting Professor at the University of Paris, at Orsay (1983--84) and Jussieu (1985); Fellow of APS; Alexander von Humboldt Senior Scientist Award (1988); High Energy Advisory Committee at Brookhaven (1979--82); DOE Review Panel for Bates, LAMPF and the Bevalac (1982); Science secretary of Barnes Panel on Electromagnetic Interactions (1981--82); member of working groups for the Long Range Plan for Nuclear Physics (1979, 1983, 1989); DOE Committee on the Future of Nuclear Theory (1987--88); member of Nuclear Sciences Advisory Committee (1988--91); NSAC Subcommittee on the Implementation of the Long Range Plan (1992); DNP Program Committee (1974--75) and Executive Committee (1988--90) member; Nominating Committee, APS Topical Group on Few--Body Systems (1992); Editorial Board, Physical Review C (1991--present); organizer of Program (Strangeness in Hadronic Systems) at National Institute for Nuclear Theory, Seattle (1992). Research interests: strange particle physics, antimatter interactions, relativistic heavy ion physics, and other topics on the interface of nuclear and particle physics.

**HAROLD E. JACKSON, JR.** -- Senior Physicist, Argonne National Laboratory 1974-present, Associate Physicist ANL 1962-73; Assistant Physicist ANL 1959-62; B.A. Cum Laude, Princeton Univ. 1954; Ph.D. Cornell Univ. 1959; Collaborateur étranger, Center d'Etudes Nucleaires de Saclay, France 1966-67; Collaborateur étranger, Accélérateur Lineaire de Saclay, France 1975-76; Director, GeV Electron Microtron Project, ANL 1981-83; Collaborateur étranger, Institut de Recherche Fondamentale, Saclay, France 1984-85; Member, US Nuclear Data Committee 1966-77; Secretary, US

Nuclear Data Committee 1972-73; US Representative, Nuclear Energy Agency, Nuclear Data Committee 1972-77; Chairman, US Nuclear Data Committee 1973-74; Chairman, LAMPF LEP Working Group 1976-77; Member, BOD, LAMPF Users Group 1979-83; Member, LAMPF Program Advisory Committee 1980-82; Chairman, BOD, LAMPF Users Group 1982; Member, National Advisory Board, CEBAF, DOE 1983-90; Member, NSAC Subcommittee on Facility Construction and National Laboratories 1986; Member, DOE/NSF NSAC 1986-88; Member, KAON Subcommittee of NSAC 1988-89; Chairman, BOD, CEBAF Users Group 1988-89; Member, DOE/NSF Long-Range Plan Working Group 1989; Member, DOE Program Review, Nuclear Physics, Brookhaven National Laboratory 1990; Member, Fellowship Committee, Division of Nuclear Physics, APS 1990-92; Associate Editor, Physical Review C, 1991-93; Member, American Physical Society and American Association for the Advancement of Science; Current research interests: Pion-nucleus interactions, deep-inelastic lepton scattering, particle accelerator design, photon interactions in the giant dipole region, threshold photoneutron reactions.

#### *Secretary-Treasurer*

**VIRGINIA R. BROWN** -- Senior Staff Scientist, Lawrence Livermore National Laboratory, 1964-present; B.S. Northeastern University 1957; Ph.D. McGill University, 1964; Post Doctoral Research Appointment, Yale University, 1963-64; Post Doctoral Fellowship LLNL, 1965-67; Guest Research Position, IKP Jülich, West Germany, approximately 2 months per year, 1980-present; Adjunct Prof., Univ. of California at Davis; Fellow APS; Executive Committee, Division of Nuclear Physics, 1980-82; Economic Concerns Committee, APS DNP 1973-77; Secretary-Treasurer, DNP 1986-present. Research-theoretical nuclear physics:

Neutron and proton (isospin) nuclear structure contributions to various transitions; comparison to hadronic, weak and EM probes. Coupled-channels effects in inelastic scattering and charge exchange. The NN system in the presence of electromagnetic and weak fields.

#### *Executive Committee*

**A. BAHA BALANTEKIN** -- Professor of Physics, University of Wisconsin-Madison, 1992 - present; Associate Professor of Physics, UW-Madison, 1989-1992; Assistant Professor of Physics, UW-Madison, 1986-1989; Eugene P. Wigner Fellow, Oak Ridge National Laboratory, 1984-1986; Research Associate, Center for Theoretical Physics, Massachusetts Institute of Technology, 1982-1984; Ph.D. in Physics, Yale University, 1982. Member, Program Committee, Topical Group on Few-Body Systems and Multiparticle Dynamics, 1987-1988; Founding Organizer, Midwest Nuclear Theory meeting series, 1989; Organizer, Fourth National Nuclear Physics Annual Summer School, 1991; Member, Steering Committee of the Nuclear Physics Summer School series, 1992 - present; Vice-Chairperson (Chairperson), Bonner Prize Selection Committee, Division of Nuclear Physics, 1992 (1993); Vice-Chairperson, Gordon Conference on QCD in Nuclear Physics, 1993 (Chairperson-elect for 1995). NSF Presidential Young Investigator, 1987-1992. Visiting Scientist/Professor: Tohoku University, 1988, 1992; University of Washington, 1989; Argonne National Laboratory, 1990, 1991; Institute for Nuclear Theory, U. Washington, 1990, 1992; Queen's University, 1992. Research interests include: Nuclear structure and heavy-ion physics; nuclear and neutrino astrophysics, solar neutrinos; physics of strong fields; quantum chromodynamics and quark degrees of freedom in nuclei;

the use of symmetry principles in nuclear physics.

**GARY E. MITCHELL** -- Professor of Physics, North Carolina State University, 1974 -- present; Director of Graduate Programs in Physics, NCSU, 1978 -- present; Associate Head of Physics, NCSU, 1983 -- present; Associate Professor of Physics, NCSU, 1968 -- 1974; Assistant Professor of Physics, Columbia University, 1964 -- 1968; Research Associate in Physics, Columbia University, 1962 -- 1964; Ph.D. in Physics, Florida State University, 1962. Associate Editor, Atomic Data and Nuclear Data Tables, 1978 -- 1982; Program Committee, Division of Nuclear Physics, 1986 -- 1988; staff member TUNL, 1968 -- present; Associate Director TUNL, 1992 -- present. Visiting Scientist: Oak Ridge National Laboratory, 1962; Brookhaven National Laboratory, 1963, 1964; Institute for Nuclear Physics, Frankfurt, 1975 -- 1976; Max Planck Institute for Nuclear Physics, Heidelberg, 1986, 1987, 1988, 1989, 1991; Fudan University, Shanghai, 1987, 1992. Member, European Physical Society; Fellow, American Physical Society; Alexander von Humboldt Senior Scientist Award, 1975 -- 1976. Research interests: Experimental nuclear physics; experimental techniques for high energy resolution; applications of nuclear physics to atomic and condensed matter physics; statistical nuclear physics; chaos; fundamental symmetries; broken symmetries in chaotic systems.

**SUSAN J. SEESTROM** -- Staff Scientist, Los Alamos National Laboratory (1986-present); Research Associate, University of Minnesota (1983-1986); Research Associate, Los Alamos National Laboratory (1981-1983). Ph.D., Experimental Nuclear Physics, University of Minnesota (1981); B.S. Physics, University of Minnesota (1976). Member APS, AAAS. APS Division of

Nuclear Physics Program Committee (1986-1988). Member Board of Directors LAMPF Users Group (1990,1992). Research - experimental nuclear physics: parity violation and time reversal invariance in nuclei; isospin structure of low-lying and giant resonance states; pion-nucleus reaction mechanism.

**BRIAN D. SEROT** -- Professor of Physics, Indiana University (1987-present), Associate Professor (1984-1987); Assistant Professor, Stanford University (1980-1983); Postdoctoral Fellow, Massachusetts Institute of Technology (1979-1980). Ph. D. in Physics, Stanford University (1979); M. S., Stanford University (1977); B. S., Yale University (1975). Director, Indiana University Nuclear Theory Center (1987-90). Chaim Weizmann Postdoctoral Fellow, MIT (1979-80); Alfred P. Sloan Fellow (1982-86); Visiting Associate in Physics, California Institute of Technology (1983); Visiting Staff Scientist, Continuous Electron Beam Accelerator Facility (1988, 1992). Indiana University Cyclotron Facility Program Advisory Committee (1987-90); US Department of Energy review panel for Nuclear Theory Institute proposals (1989); Nuclear Science Advisory Committee Long-Range-Plan Working Group, Boulder (1989); Co-organizer, Program on Mesons and Fields in Nuclei, Institute for Nuclear Theory, Seattle (1992); Los Alamos Meson Physics Facility Program Advisory Committee (1992-present). DNP: Ph. D. Dissertation Award Committee (1989), Program Committee (1990-1992), Physics News Committee (1992). Member: Phi Beta Kappa, Sigma Xi. Research Interests: Relativistic quantum many-body theory, hadronic field theories of nuclear structure and reactions, hot and dense hadronic matter, parity violation in nuclei.

**JOHANNA STACHEL** -- Associate Professor of Physics, State University of New York at Stony Brook, 1989 - present; Assistant Professor of Physics, SUNY Stony Brook, 1985 - 1989; Visiting Assistant Professor, SUNY Stony Brook, 1984 - 1985; Research Associate, Nuclear Structure Laboratory, SUNY Stony Brook, 1983 - 1984; Research Associate Johannes-Gutenberg Universitaet Mainz, Germany, 1979 - 1983; Ph.D. (summa cum laude), University Mainz, 1982; Diploma, University Mainz, 1978; Committees: NSAC 1992 - ; Program Initiation Group for Nuclear and Particle Physics, National Research Council, 1991 - present; APS Division of Nuclear Physics Program Committee, 1991 - present; Fellowships and Awards: Presidential Young Investigator, 1988; Alfred P. Sloan Fellowship, 1986; Feodor-Lynen-Fellowship A.v.Humboldt Stiftung, 1983 - 1985; Prize of the Johannes Gutenberg University, Mainz, best Ph.D. thesis of year 1982; Fellowship Studienstiftung des Deutschen Volkes, 1975-1982; Present Research Interests: Collisions between relativistic heavy ions, nuclear matter at high density and high temperature, restoration of chiral symmetry and formation of quark-gluon plasma.

**STEPHEN J. WALLACE** -- Professor of Physics, University of Maryland (1983 - present); Associate Professor (1978-1983); Assistant Professor (1974 - 1978). Guest Worker, National Bureau of Standards (1981-82); Visiting Staff Member, Los Alamos National Laboratory (1988); Donders Chair, University of Utrecht (1988); Lady Davis Fellow, Hebrew University of Jerusalem (1988). Research Associate, Harvard University (1972-1974) and University of Florida (1971-1972). Ph.D., Theoretical Nuclear Physics, University of Washington (1971). Research Engineer, The Boeing

Company (1961-68). Panel on Future Directions in Nuclear Physics, Boulder (1979). Program Advisory Committee, Los Alamos Meson Physics Facility (1982-84), Chairman of High Resolution Spectrometer Subcommittee (1983-84). Program Advisory Committee, Los Alamos Meson Physics Facility (1989-92), Chairman of Nucleon Physics Subcommittee (1991-92). DOE Review Panel, Los Alamos Meson Physics Facility (1988). NSF Review Panel, Indiana University Cyclotron Facility (1990). Fellow , American Physical Society. Editorial Board, Physical Review C (1989-91). Current Research: Theory of Scattering of nucleons and pions by nuclei; Relativistic dynamics in nuclear structure and scattering; Relativistic bound states of few particle systems; Quark models of mesons and nucleons; Electromagnetic interactions.