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Monterey, California, Naval Postgraduate School

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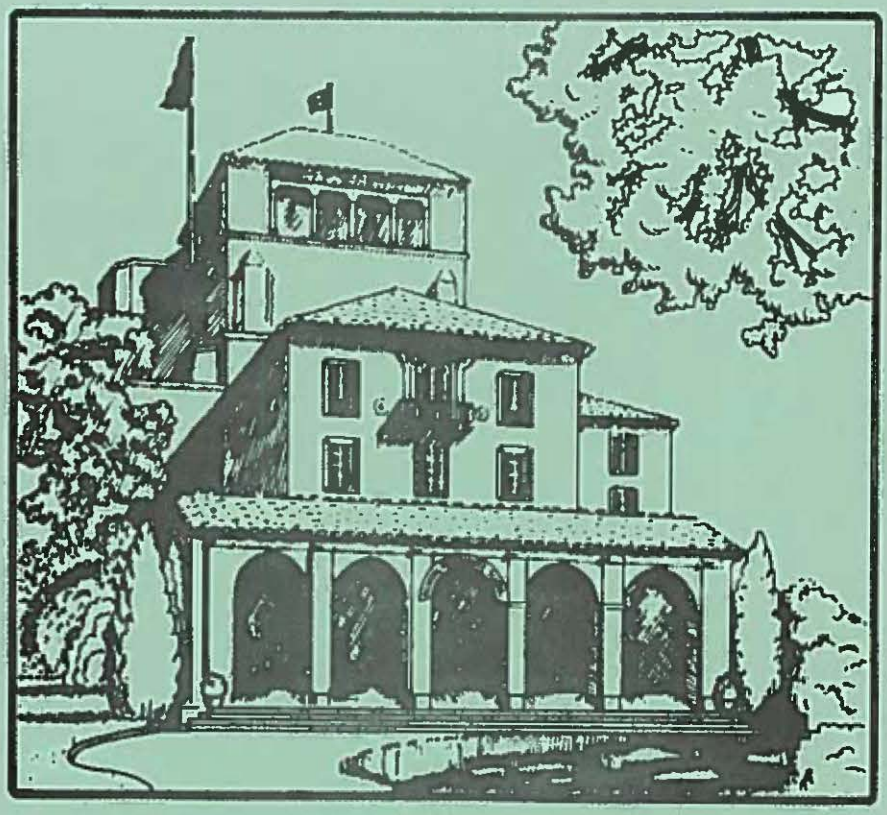

Naval Postgraduate School

FACULTY BULLETIN

ISSUE NO. 16-70 10 AUGUST 1970

COMMITTEE APPOINTMENTS

Professors R. J. Renard, D. B. Hoisington, and Assistant Professor G. L. Musgrave have been appointed to membership on the 1970-71 Committee on Excellence in Teaching Award for a two-year term ending 30 June 1972. They represent, respectively, the Engineering Departments, the Science Departments and the group of Departments, Operations Analysis, Government and Humanities, and Business Administration and Economics.

NEW NPGS FACULTY

Associate Professor Robert E. Boynton served four and a half years in the U. S. Navy as an Electronics Technician after graduation from high school. He received his B.A. degree from the University of Minnesota in 1956 and an M.A. degree in Industrial Relations in 1962. During his college studies he worked as a communications technician and radio and television engineer. His graduate work was taken at Stanford University from which he received the degree of Doctor of Philosophy in 1968. Subsequently, he was Assistant Professor of Management at Arizona State University for four years. Dr. Boynton joined the faculty of the Navy Management System Center in June. His primary research interests are management theory, managerial and organizational policy, and human resource management. He is a member of the Academy of Management, the Industrial Relations Research Association, the American Society for Personnel Administration, the Labor Arbitration panels of the American Arbitration Association and the Federal Mediation and Conciliation Service, and Sigma Iota Epsilon.

Associate Professor Edgar B. Dally graduated cum laude with a B.A. degree from Miami University, Oxford, Ohio in 1953. He continued at Miami University as a teaching assistant and received his M.A. degree in 1955. He continued his graduate work at Stanford University and received his Ph.D. in Physics in 1961. His thesis work was done at the Stanford Mark III linear electron accelerator. For the next two years he was an instructor at the Physik-Institut der Universitat, Zurich and during this period he experiemented in low-energy nuclear physics. In 1963 he moved to Strasbourg, France to do research in low-energy nuclear physics at the Institute de Recherches Nucleaires of the University of Strasbourg. At the same time he worked on experiements in pion photoproduction at the Frence linear accelerator located at the Faculte des Sciences, University of Paris. He returned to the United States in 1966 to the Stanford Mark III accelerator as a Research Physicist where he continued to work on pion photoproduction experiments. In July he joined the faculty of the Physics Department where he is continuing his research on nuclear and nucleon structure at the 120MeV electron linear accelerator. Professor Dally is a member of the American Physical Society, the American Association for the Advancement of Science and Sigma Pi Sigma.

Professor John R. Neighbours, entered Case Institute of Technology in Cleveland, Ohio after high school. After interruption of his studies of physics and mathematics by service in the armed forces during World War II he returned to Case where he finished both his undergraduate and graduate education. He was awarded the Bachelor of Science degree in 1949, the Master of Science in 1951, and the Ph.D. in 1953. His graduate research was on the elastic constants of metals and wave propagation in anisotropic crystals. After graduation Dr. Neighbours held a two-year appointment as assistant professor of physics at Rensselaer Polytechnic Institute where he continued his research in wave propagation. From 1956 until 1959 he was a member of the technical staff of the Scientific Laboratory of the Ford Motor Company. In 1959 he joined the staff of the Physics Department of the Naval Postgraduate School.

In addition to his teaching duties he carried out research in low temperature physics and with several other staff members initiated the present Ph.D. program in physics at the Postgraduate School. In 1968 h took a leave of absence from the Naval Postgraduate School in order to serve as Chairman of the Physics Department at Colorado State Universit He returned to the Naval Postgraduate School in June again with the faculty of the Physics Department. He is a fellow of the American Physical Society and a member of Sigma Xi.

Major Herbert C. Puscheck, Corps of Engineers, U. S. Army, attended the U. S. Military Academy at West Point, where he received his degree in general engineering in June 1958. Following a Basic Officer's Course a Ft. Belvoir, Virginia, airborne training at Ft. Benning, Georgia, and a short assignment at Ft. Leonard Wood, Missouri, he joined the 9th Engineer Battalion (Combat) in Asochoffenburg, Germany, where he comman an engineer platoon and later an engineer company. In June 1962, he en rolled as a graduate student at Purdue University and received the degr of Master of Science in Electrical Engineering in 1964. Following attendance at the Engineer Officer's Career Course at Ft. Belvoir, Va., he was assigned as an Area Engineer Advisor to five central provinces in South Vietnam. He joined the faculty of the Department of Ordnance at the U. S. Military Academy in August 1966 where he was Assistant Professor of Management Engineering. In August 1969, he received the degree of Doctor of Philosophy from the Department of Industrial Engine ing at Purdue University. His research was in sequential decision making. In August 1969, he returned to Vietnam where he was assigned a Operations Officer of the 159 Engineer Group (Construction). He joined the faculty of the Navy Management Systems Center in July 1970. His cu rent research is concerned with sequential decision making in a conflic environment. He is a Professional Engineer (Civil) registered in District of Columbia, a member of the Society of American Military Engineers and the Operations Research Society of America.

Assistant Professor F. Russell Richards attended Louisiana Polytechnic Institute where he majored in mathematics with a minor in business data processing. In June, 1965 he graduated with honors, receiving the degr of Bachelor of Science. Upon graduation he was employed as a mathemati cian with the U. S. Naval Weapons Laboratory at Dahlgren, Virginia wher he worked with the Anti-Submarine Warfare group on a simulation model. He then enrolled in the graduate program in mathematics at Clemson Uni versity in August, 1965. In 1967 he received the degree of Master of Science with his research in the area of combinatorial mathematics. He continued in the graduate program at Clemson University, working toward the degree of Doctor of Philosophy in the field of statistics. While a student at Clemson University he was employed by Beloit Kleinewefers Corp. to develop computer programs to be used in the design of several of their products. He also returned one summer, 1968, to the U. S. Naval Weapons Laboratory where he worked with the Operations Research group on another Anti-Submarine Warfare model. In July he joined the faculty of the Operations Analysis Department.

FACULTY PUBLICATIONS

F. A. Bumiller, F. R. Buskirk, and J. N. Dyer
The Measured Energy Loss of High Energy Electrons in Copper and Lead. Z. Physik, No. 234, 1970, p. 185-192.

Abstract: The energy distributions of electrons of about 53, 75 and 93 MeV have been measured before and after passing through copper absorber of thickness up to 5.726 g/cm^2 and lead absorbers of thickness up to 2.825 g/cm^2. Earlier data for aluminum absorbers are reviewed. The electrons were accelerated by the LINAC of the Naval Postgraduate School. The most probable energy losses agree with the theory of Blunck and Westphal for all thicknesses; the half widths agree except for large thicknesses, where they are smaller than theoretical values for lead, in agreement for copper, and larger for aluminum. Large numbers of electrons of energy less than 30 MeV are observed in the distributions of transmitted electrons, particularly for thick absorbers and higher values of atomic number. These are apparently the result of multiple processes in the absorbers.

G. Garrettson, and A. Leonard
Green's functions for multidimensional neutron transport in a slab. Journal of Mathematical Physics, Vol. 11, No. 2, February 1970, p. 725-740.

Abstract: The integral form of the one-speed, steady-state Boltzmann transport equation is solved for a point source in a homogeneous, isotropically scattering slab. Also, the solution for a line source normal to the slab (e.g., a pencil beam) is obtained to show that Green's Functions for more symmetrical sources are readily generated.

D. H. Nguyen
Calculation of Neutron Time-Energy Distributions Following on Epithermal Burst. Transactions of American Nuclear Society, Vol. 13, No. 1, June-July 1970, pp. 173-175.

Abstract: The Laplace-transformed neutron multigroup diffusion equations with external sources are reduced to a nonhomogeneous matrix equation, which admits a unique solution when the determinant of the matrix operator is nonsingular. The evaluation of the inversion Bromwich integral involves solving the corresponding eigen value problem and calculating the residues in a straightforward manner.

D. H. Nguyen
The Bounds on the Continuous Spectrum of Pulsed Fast Assemblies. Transactions of American Nuclear Society, Vol. 13, No. 1, June-July 1970, pp. 285-287.

Abstract: It is shown that under the assumption of a cut-off neutron energy, the continuous spectrum of the time-energy dependent neutron diffusion operator is bounded from both above and below. In particular, the lower bound (negative decay constant with largest magnitude) is shown to depend on the physical properties of the slowing-down medium (neutron elastic, inelastic scattering cross-sections, fission and absorption cross-sections).

T. Sarpkaya and LT D. C. Richardson
Turbulent Jet over an Inclined Wall. Transactions of the ASME, Journal of Basic Engineering, Vol. 92, Series D, No. 2, p. 287-293, June 1970.

Abstract: The flow in a turbulent wall jet, with a control port and setback between the nozzle exit and the leading edge of the wall, was probed at various stations along the jet for Reynolds numbers (based on the nozzle width) ranging from 20,000 to 140,000. A new integral equation was used in the interpretation of the results and in the determination of the limitations of the range of applicability of Glauert's wall-jet analysis.

Donald H. Trahan, and Norman E. Tonti
Analytic Functions whose Real Parts are Bounded Below. Mathematische Zeitschrift, Vol. 115, 1970, pp. 252-258.

Abstract: Some of the theorems of this paper are generalizations of results due to C. Caratheodory, E. Borel, and T. H. MacGregor in analytic function theory. Under suitable restrictions Theorem 5 of this paper gives estimates for the coefficients of an analytic functio using a certain constant B . $B < 1$. For $0 < B < 1$, the result is sharper than the Bieberbach conjecture that for a suitably normalized analytic function defined inside the unit circle, $|a_n| \leq n$.

PRINCIPAL PROFESSIONAL ACTIVITIES

Associate Professor George L. Sackman of the Electrical Engineering Department presented a paper entitled "An Electronically Scanned Transducer Array Using Microcircuit Devices" at the third International Symposium on Acoustical Holography held at Newport Beach from 29-31 July

GROUNDBREAKING CEREMONY

The groundbreaking ceremony for our new Library will be held Monday, 24 August at 1100, on the building site across the street from Ingersoll Hall. All faculty members, students, and staff of the School are cordially invited to attend.

STANDING COMMITTEES OF ACADEMIC COUNCIL

The current membership of the Standing Committees of the Academic Council is as follows:

Committee on Operations

Asst. Prof. R. H. Stolfi, Chairman	30 June 1971
Assoc. Prof. G. F. Lindsay	30 June 1972
Prof. R. A. Reinhardt	30 June 1973

Committee on Curricula

Assoc. Prof. U. R. Kodres, Chairman	30 June 1971
Prof. F. L. Martin	30 June 1972
Prof. E. C. Haderlie	30 June 1973

Committee on Candidacy and Degree Awards

Assoc. Prof. G. H. Lindsey, Chairmen	30 June 1971
Assoc. Prof. J. M. Bouldry	30 June 1972
Asst. Prof. R. H. Nunn	30 June 1973

Committee on Scholastic Standards and Honors

Prof. R. L. Kelly, Chairman	30 June 1971
Prof. L. Darbyshire	30 June 1972
Assoc. Prof. J. W. Schultz, Scholarship Comm. Rep.	30 June 1973

RESEARCH AWARDS

The following is a list of sponsored research funds received by the Naval Postgraduate School during the period 1 July through 31 July 1970. The projects indicated by asterisks are continuations of existing programs.

Source	Amount	Title	Principal Investigator
Director of Lab. Programs Washington, D.C.	$150,000	Foundation Program #1-71(6.2)	Dean C. E. Menneken, Research Administration
Naval Missile Center Pt. Magu, Calif.	25,000	Kalmen Filtering Technique #2	Assoc. Prof. H. Titus, Electrical Engineering
Naval Research Lab. Washington, D.C.	5,000	Spectroscopic Data Center NRL	Prof. R. L. Kelly Physics
Naval Personnel R&D Labs. Washington, D.C.	15,000	Computer Aided Instructions Program	Prof. J. R. Borsting, Ops. Analysis
Naval Personnel R&D Labs. Washington, D.C.	12,000	Develop a Man-to-Man Rating Scale of Evaluating Performance	Assoc. Prof. W. H. Githens, Business Administration
Naval Personnel R&D Labs. Washington, D.C.	15,000	New Developments Human Factors Program Guide	Assoc. Prof. J. K. Arima, Ops. Analysis
Strategic Systems Project Office Washington, D. C.	30,000	Reliability Studies Poseidon Program	Assoc. Prof. R. H. Shudde, Ops. Analysis

RESEARCH AWARDS (Continued)

Source	Amount	Title	Principal Investigator
National Science Foundation Washington, D.C.	$ 19,300	An Atlas of Computed Oceanic Lightfields	Prof. R. W. Preisendorfe Mathematics
Naval Facilities Engineering Cmnd., Washington, D.C.	23,000	Sea Floor Soil Mechanics	Prof. R. J. Smith, Oceanography
Naval Air Systems Command Washington, D.C.	22,000	Hybrid Compressor	Prof. M. H. Vavra, Aeronautics
Chief of Naval Research Arlington, Virginia	495,000	Foundation Program #2-71(6.1)	Dean C. E. Menneken, Reasearch Administration
Naval Air Systems Command Washington, D.C.	22,500	ASW Studies	Prof. W. P. Cunningham, Operations Analysis
Naval Air Systems Command Washington, D.C.	12,000	Control Systems	Prof. T. Sarpkaya Mechanical Engineering
Chief of Naval Research Arlington, Virginia	5,000	Government Studies	Prof. T. Sarpkaya Mechanical Engineering
Naval Electronic Systems Command Washington, D.C.	20,000	Application of Hybrid Computations	Prof. G. Rahe, Electrical Engineering

TRAVEL - 10 - 24 AUGUST

Supported by BuPers Funds

D. E. Harrison	8/8 - 8/15	Plymouth, N.H.	Attend Gordon Research Conference
R. E. Ball	8/10 - 8/15	Palo Alto	Attend LMSC-AFFDC Conf. on Computer Oriented Analysis of Shell Structures
J. M. Fremgen	8/17 - 8/21	College Park, Md.	Attend annual convention of Am. Acct. Assoc.

Supported by Other Funds

G. Cantin	8/10 - 8/11	Palo Alto	Attend LMSC-AFFDL Shell Conference