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1971-07-06

## Naval Postgraduate School Faculty Bulletin, 1971-07-06

Monterey, California, Naval Postgraduate School

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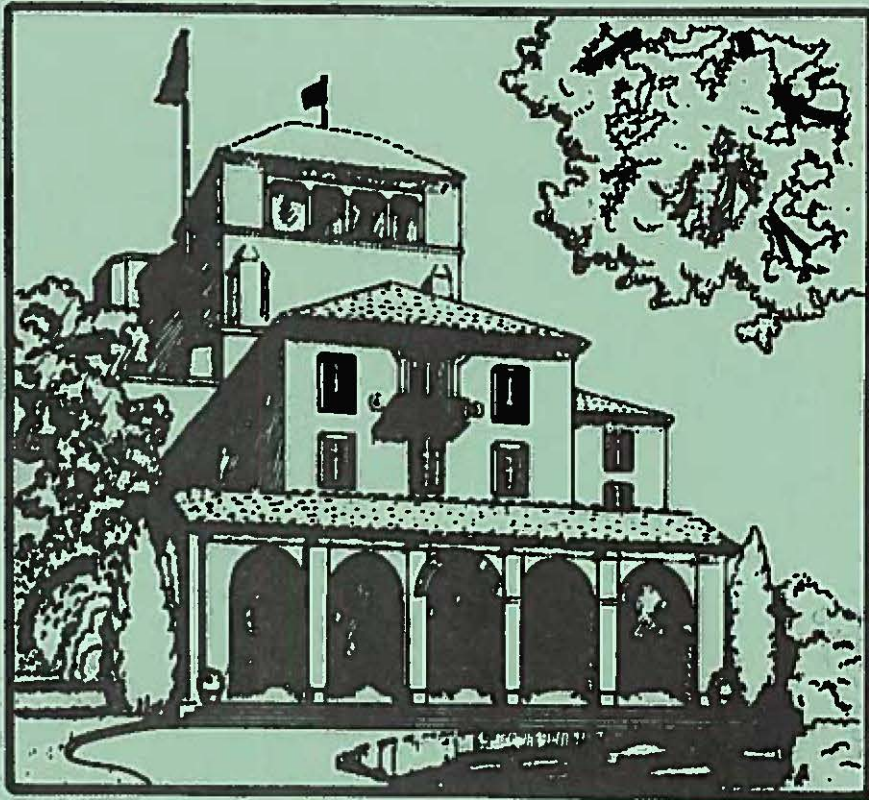
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## Naval Postgraduate School

# FACULTY BULLETIN

ISSUE NO. 10-71

6 July 1971

### FACULTY RESEARCH AWARD FOR 1971

The Faculty Research Award for 1971 was presented to Professor Turgut Sarpkaya of the Department of Mechanical Engineering at the initiation banquet for the Society of Sigma Xi, on 17 June 1971.

This award is given annually in recognition of distinguished research contributions made by a member of the staff or student body. Professor Sarpkaya has conducted extensive theoretical and experimental research in the field of hydrodynamics, unsteady fluid mechanics, fluidics and automatic controls.

This award is in recognition of his outstanding contributions in these fields and for the inspiration given to his students and colleagues.

## PROFESSIONAL ACTIVITIES

Professor Glenn F. Lindsay, Associate Professor of Operations Research, has been designated as program chairman for the 28th Military Operations Research Symposium. The meeting will be held in November at the Army Logistics Management Center, Fort Lee, Virginia, and will be attended by approximately 500 military and civilian operations research analysts from the various services, their contractors, and the Department of Defense.

Congratulations to Professor R. L. Kelly, Department of Physics, on his appointment by the President of the National Academy of Sciences/National Research Council as a member of the Committee on Line Spectra of the Elements.

Associate Professor D. M. Layton, Department of Aeronautics, has been elected to a three-year term as a Director of the System Safety Society. Two directors are elected each year from among the nearly 1,000 members of this Society. Professor Layton will continue as Editor of the Society's bi-monthly magazine, Hazard Prevention.

Professor T. Sarpkaya will attend the International Federation of Automatic Controls Conference in Prague, Czechoslovakia during the first week of July, present two papers, and chair a session there. Afterwards he will join Professor Hermann Schlichting's research laboratory at the University of Gottingen and will be engaged in research in unsteady fluid flow during his sabbatical leave. At the termination of the sabbatical leave, Professor Sarpkaya will return to the Mechanical Engineering Department. Professor Robert H. Nunn will serve as the Chairman of the Department of Mechanical Engineering during his absence.

## DISTINGUISHED VISITORS

Under Secretary of the Navy John W. Warner visited the Naval Postgraduate School on 18 June 1971. Under Secretary Warner was the keynote speaker for the June Graduation held on that date.

## AWARD FOR EXCELLENCE IN TEACHING

At the June Graduation Ceremony on June 18, 1971, the Superintendent presented the annual Award for Excellence in Teaching to Professor E. C. Haderlie of the Department of Oceanography.

The Excellence in Teaching Award was established by the Superintendent to augment incentives for high quality teaching. Professor Haderlie was selected from the teaching faculty at the Naval Postgraduate School, an institution where teaching is paramount and must be of the highest caliber. The information which led to his selection was collected from a poll of students, alumni, faculty, and staff. A total of 1441 ballots was received, carefully processed and analyzed. Anonymity of all eligible faculty during the selection process was maintained by using a code with the key unknown to the Committee.

As the recipient of this award, Professor Haderlie received The Rear Admiral John Jay Schieffelin Award for Excellence in Teaching, a cash award made possible through a grant to the Naval Postgraduate School by Mr. William Schieffelin of New York, brother of the Admiral. In addition, he received a Special Achievement Award for Superior Accomplishment.

## DISTINGUISHED PROFESSORS

The Ad Hoc Committee for Selection of Distinguished Professors this year recommended two professors to the Provost and Superintendent for designation as "Distinguished Professors." Professor E. C. Crittenden, Jr., Professor of Physics, and Professor W. Peyton Cunningham, Professor of Physics and of Operations Analysis, were the faculty members selected and they were awarded the Distinguished Professor Medallion at the Graduation Ceremony on 18 June 1971.

## GUEST SPEAKERS FOR MATHEMATICS WORKSHOP

Guest speakers for the 3rd Annual Mathematics Workshop to be held in Spanagel Hall, Room 101 from 26 - 30 July 1971 are:

Donald E. Knuth, Dept. of Computer Science, Stanford University  
Joshua Lederberg, Dept. of Genetics, Sch. of Medicine, Stanford Univ.  
D. R. Fulkerson, The Rand Corporation  
D. K. Ray-Chaudhuri, Dept. of Mathematics, Ohio State University  
Fred Glover, Graduate School of Bus Ad, University of Colorado  
Eugene L. Lawler, College of Engineering, U. C. at Berkeley.

## FACULTY PUBLICATIONS

Garrison, C. J. and V. Seetharama Rao.

Interaction of Waves with Submerged Objects. *Journal of the Waterways, Harbors and Coastal Engineering Division of the American Society of Civil Engineering.*, May 1971.

Abstract: The hydrodynamic problem of wave interaction with a submerged object is approached by means of diffraction theory. The analysis is applied to a submerged hemisphere resting on the bottom, and numerical results are obtained for horizontal and vertical force coefficients and pressure distributions. These results are compared with results obtained from a simpler approach to show where the effects due to the proximity of the free surface and the relative size of the object become significant. Also, corresponding experimental results are presented for comparison with the theory.

Kelleher, Matthew.

Free Convection from a Vertical Plate with Discontinuous Wall Temperature. *Transactions of the ASME.*

Abstract: Free convection from a vertical plate with a step discontinuity in wall temperature is analyzed by using asymptotic series. Expansions for the velocity and temperature profiles are obtained in the region immediately above the discontinuity. By series truncation, the wall heat flux is obtained in terms of a simple polynomial. Calculations are made for  $Pr=0.72$  and  $10.0$  and for various wall-temperature ratios. Comparison of the results with experimental data and previous numerical solutions is good.

Sarpkaya, T.

On Mean Motion, Jet Turbulence and Noise in Proportional Fluid Amplifiers. *Proceedings of the International Federation of Automatic Controls, Vol. 2, pp. 1-7, Sec. A, June 1971.*

Abstract: The deflection angle as a function of the velocities of the power and control jets and the turbulence and noise levels at various stations along the deflected jet have been determined both experimentally and through the use of the free-streamline theory whenever appropriate.

Sarpkaya, T.

On a new vortex angular rate sensor. *Proceedings of the International Federation of Automatic Controls, Vol. 2, pp. 86-91, Sec. B, June 1971.*

Abstract: The performance characteristics of a new angular rate sensor are evaluated both theoretically and experimentally. The experimentally determined differential-pressure outputs compared favorably well with those predicted theoretically through the use of integral-momentum equations.

Hess, R. A.

Optimal stochastic control and aircraft gust alleviation. Journal of Aircraft, Vol. 8, No. 4, April 1971, 11. 284-286.

Abstract: A large jet transport is chosen for study. Disturbance adaption is shown to be unnecessary in that adaption to changes in flight condition takes precedence over adaption to changes in gust spectral characteristics. Significant improvement in transient and mean square performance is achieved over the unalleviated, open loop system.

TRAVEL ORDERS WRITTEN 10 JUNE - 30 JUNE 1971

Supported by BuPers Funds:

|                 |           |                     |   |
|-----------------|-----------|---------------------|---|
| Mauregui, S.    | 6/10-6/12 | San Diego           | Mts on Bioengineering with NELC and Naval Hospital.         |
| Williams, D.G.  | 6/10-6/10 | Mtn View            | Disc. on Computing Networks at NASA, Ames Research Center.  |
| von Schwind, JJ | 6/27-7/2  | College Station, TX | Att. Marine Acoustics short course at Texas A&M University. |
| Penning, WJ     | 6/27-6/30 | Seattle             | Att. SIAM Meeting.  |
| Brook, G.K.     | 6/20-6/27 | Wash, DC            | Discuss Bioengineering Program.                             |
| Viskoff, MF     | 6/21-6/28 | Wash, DC            | Att. Mtg. on Cultural Bias in Testing.                      |
| Parker, S. R.   | 6/22-6/27 | San Diego           | Visit NEL, Att. AAAS Mtg, Visit UCLA.                       |
| Mauregui, S     | 6/26-7/1  | Wash, DC            | Discuss Bioengineering Program.                             |
| Marmon, GH      |           |                     |   |

Supported by Research Funds:

|               |           |                                   |   |
|---------------|-----------|-----------------------------------|---|
| Schlachter, W | 6/30-7/2  | Pasadena                          | Att. Small Gas Turbine Conf.  |
| Papailiou, KD |           |                                   |   |
| Dayton, DM    | 6/27-6/30 | Anaheim                           | Att. Reliability & Maintainability Symposium.   |
| Woods, W. M.  |           |                                   |   |
| Blackman, GL  | 7/1-8/1   | Andros I, WashDC, WoodsHole, Mass | Participate in ORIC experiment at Autec Range, Conferences and Disc., NAS Summer Study on Undersea Warfare. |
| Dayton, DM    | 7/11-7/16 | Seattle                           | Att. 3rd Aircraft Design & Opns Mtg.  |
| Mathews, WH   | 6/17-6/21 | SanDiego                          | Consultation.   |
|               | 6/24-6/28 | SanDiego                          | Consultation.   |
| Haupt, U.     | 6/21-6/26 | Dayton, O.                        | Prepare Symposium.  |
| Denner, WW    | 6/19-6/25 | Seattle, Vancouver                | Att. Arctic Ice Deformation Joint Experiment planning session, Disc. Arctic Research.                       |
| Maney, R. L.  | 6/15-6/22 | L. A.                             | Participate in workshop on the UCLA General Circulation Model.  |
| Titus, H A    | 6/19-6/28 | Aspen, Col.                       | Att. Workshop on Walsh Functions and their applications.  |
| Collins, DJ   | 6/17-6/19 | St Louis, Mo.                     | Att. Missile Systems Tech. Comte Mtg AIAA and sub-committee mtg.  |

|                                   |           |   |  |
|-----------------------------------|-----------|---|--|
| Read, RR                          | 6/20-6/27 | WashDC<br>ColumbusO                       | Conf. w/NavSecGru, Att. Symposium<br>on Optimization methods.  |
| Kline, MB                         | 6/15-6/30 | WashDC<br>Anaheim                         | Att. ASEE Mtg, Deliver lecture on<br>maintainability at VPI, visit Naval A<br>Att. Reliability & Maintainability Sy: |
| Medwin, H                         | 7/23-9/24 | Budapest<br>London<br>LeBrusc<br>LaSpezia | Att. VII Int'l Congress on Acoustics<br>Visit various scientists.  |
| Schneidewind, NF                  | 6/28-7/2  | SanDiego                                  | Conference on Research Project.  |
| Leipper, DF                       | 6/30-6/30 | Vallejo                                   | Visit Inact. Ship Fac., MareIsland.  |
| <u>No Cost to the Government:</u> |           |   |  |
| Martin, F                         | 6/28-7/13 | Honolulu                                  | Visit USWB, U of Hawaii, NWC, AF   |
| Williamson, T                     | 6/21-6/23 | S. Fran.                                  | Att. American Assoc of Physicists<br>Regional Meeting.   |
| Menneken, C                       | 7/7-7/11  | WashDC                                    | Att. Mtg of Mine Advisory Committee<br>Panel of National Academy of Scienc   |



