

AD-A230 276

FILE COPY

①

FINAL TECHNICAL REPORT

on

Grant N00014-90-J-1862

Financial Support for the Eleventh U.S. National
Congress of Applied Mechanics

Submitted by

C. F. Chen

DTIC
SELECTE
JAN 04 1991
S D

Department of Aerospace and Mechanical Engineering
The University of Arizona
Tucson, Arizona 85721

DECLASSIFICATION STATEMENT A
Approved for public release
Distribution Unlimited



ENGINEERING EXPERIMENT STATION
COLLEGE OF ENGINEERING AND MINES

THE UNIVERSITY OF ARIZONA
TUCSON, ARIZONA 85721

BEST
AVAILABLE COPY

90 12 27 116

Financial Support for the Eleventh U.S. National Congress of Applied Mechanics

[illegible]

Final Report on

"FINANCIAL SUPPORT FOR THE ELEVENTH U.S. NATIONAL CONGRESS OF APPLIED MECHANICS"

1. *Abstract*

The Eleventh U.S. National Congress of Applied Mechanics was held on the campus of The University of Arizona, Tucson, Arizona, May 21-25, 1990. It was a very successful meeting, attracting more than 400 scientists and engineers. The scientific content of the Congress consisted of 5 general lectures, 14 topical symposia, and 65 contributed paper sessions--a total of 356 technical presentations. It was a busy and scientifically exciting period of four and a half days. We look forward to the next Congress to be held at the University of Washington in 1994.

2. *Background of the U.S. National Congress of Applied Mechanics*

The U.S. National Congress of Applied Mechanics is held every four years. Its schedule is offset by two years from the International Congress of Applied Mechanics, which is also held every four years. The first USNCAM was held in 1950 on the campus of the Illinois Institute of Technology, and Congresses have been held without interruption since that time:

1st	1950	Illinois Institute of Technology
2nd	1954	University of Michigan
3rd	1958	Brown University
4th	1962	University of California at Berkeley
5th	1966	University of Minnesota
6th	1970	Harvard University
7th	1974	University of Colorado
8th	1978	University of California at Los Angeles
9th	1982	Cornell University
10th	1986	University of Texas at Austin
11th	1990	University of Arizona, Tucson

The Congress usually attracts a large number of participants, who come from academia, industry, and government laboratories. It is a gathering of research workers engaged in all facets of applied mechanics. It provides a forum for the discussion of current research results and the contemplation of future research directions. It has become an indispensable part of the scientific exchange of information among engineers and scientists working in the field of applied mechanics.

3. *The Scientific Content of the Eleventh Congress*

The Scientific Committee of the Eleventh USNCAM was chaired by Professor Robert Brokey of Ohio State University. The members were:

D. B. Bogy (Berkeley)	M. Goldstein (NASA Lewis)
F. H. Champagne (Arizona)	E. R. Krempf (Rensselaer)
C. F. Chen (Arizona)	S. Leibovich (Cornell)
S. H. Davis (Northwestern)	J. T. Oden (Texas)
C. Desai (Arizona)	K. S. Pister (Berkeley)
D. C. Drucker (Florida)	W. C. Reynolds (Stanford)
L. B. Freund (Brown)	G. S. Springer (Stanford)
Y. C. Fung (UCSD)	Van Dyke (Stanford)
R. H. Gallagher (Clarkson)	

The scientific sessions for each day of the five-day Congress began with a general lecture and were followed by simultaneous sessions of topical symposia. There were fourteen symposia, with a total of 66 invited papers presented. In the afternoon, there were multiple simultaneous sessions of contributed papers covering all aspects of applied mechanics. A total of 285 contributed papers was presented in 65 sessions.

General Lectures were given by:

Stephen H. Davis (Northwestern), "Fluid Mechanics of Solidification"
Rodney Clifton (Brown), "High Strain Rate Behavior in Solid Structural Mechanics"
Philip Holmes (Cornell), "Nonlinear Dynamics and Chaos"
Robert Taylor (UC Berkeley), "Computational Methods in Solid Structural Mechanics"
Alar Toomre (MIT), "Dynamics of Galaxies"

The following Topical Symposia were conducted at the Congress:

"Fluid Mechanics of Solidification," S. H. Davis (Northwestern) [2 sessions]
"Turbulence Theories and Modelling," J. M. Wallace (Maryland) [2 sessions]
"Transition in Wakes of Axisymmetric Bodies," A. J. Pearlstein (Arizona)
"Receptivity Phenomenon," E. J. Kerschen (Arizona)
"Mechanics of Solid Interfaces and Films," J. W. Hutchinson (Harvard) and K. S. Kim (Illinois)
"Mechanics Applied to Living Organisms," Y. C. Fung, R. Skalak, and S. Woo (UC San Diego) [2 sessions]
"Failure Modes in Dynamic Fracture," A. Rosakis (CIT) and L. B. Freund (Brown)
"Structural Acoustics and Fluid-Structure Interactions," T. J. R. Hughes (Stanford) and A. Tucker (ONR)
"Failure of Composite Materials," G. Springer (Stanford) and S. S. Wang (Illinois)
"Material Instability," R. James (Minnesota) and J. Jenkins (Cornell)
"Viscoplasticity: Experiment, Modeling and Computation," E. Krempl (Rensselaer) and D. McDowell (GIT)

All general lectures and invited papers were collected in the conference proceedings published by the ASME Press. Abstracts of contributed papers were collected in a volume and distributed to the attendees at the Congress. One copy each of the Congress Proceedings and the Book of Abstracts is submitted with this report.

A banquet was held on Wednesday, May 23, 1990. The highlight of the evening was a program of music from the renaissance and baroque periods given by Collegium Musicum featuring Professor Bill Sears on the recorder and on the drum.

4. Support From Other Agencies

We solicited financial support from the following University sources, other federal agencies, and industrial organizations:

Office of the Vice President for Research, The University of Arizona
College of Engineering and Mines, The University of Arizona
The National Science Foundation
Allied Signal Aerospace Company
IBM Corporation
Salt River Project
Hughes Aircraft Company
AG Communication Systems
Modular Mining Systems

With the generous support of the Office of Naval Research and the above organizations, we were able to set the registration fee at \$175.00, including a copy of the Congress Proceedings.

5. *Budget for the Congress*

I. *Income*

Registration Fee	\$64,473.00
Grants from government agencies (less overhead)	\$40,000.00
Contributions from industry	\$5,750.00
Banquet ticket sales	\$5,850.00
Grants from the Office of VP Research, UofA	\$3,000.00
Grants from the College of Engr. & Mines	\$3,000.00
Received from the previous Congress	\$3,000.00
Total	<u>\$125,073.00</u>

II. *Expenditures*

Conference expenses (administrative charges, publicity, postage, telephone, facilities rental, transportation)	\$60,000.00
Reimbursement of expenses to general lecturers	\$5,005.00
Banquet	\$5,850.00
Reception, coffee breaks	\$14,400.00
Proceedings publication (400 x 25)	\$10,000.00
Secretarial help (1.5 person years)	\$26,818.00
To the next Congress	\$3,000.00
Total	<u>\$125,073.00</u>

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for Public Release Distribution is unlimited		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBER(S)			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION The University of Arizona		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION		
6c. ADDRESS (City, State and ZIP Code) Department of Aerospace & Mechanical Engr. Building No. 16 Tucson, Arizona 85721			7b. ADDRESS (City, State and ZIP Code)		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION ONR		8b. OFFICE SYMBOL (If applicable) Code 1513:ETF	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER N00014-90-J-1862		
8c. ADDRESS (City, State and ZIP Code) 800 North Quincy Street Arlington, Virginia 22219-5000			10. SOURCE OF FUNDING NOS.		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
11. TITLE (Include Security Classification) Financial Support for the Eleventh US National Congress of Applied Mechanics			WORK UNIT NO.		
12. PERSONAL AUTHOR(S) Dr. C. F. Chen					
13a. TYPE OF REPORT Final Scientific		13b. TIME COVERED FROM 4/1/90 TO 9/39/90		14. DATE OF REPORT (Yr., Mo., Day) 90/12/17	
				15. PAGE COUNT 4	
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB. GR.			
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
The Eleventh U.S. National Congress of Applied Mechanics was held on the campus of The University of Arizona, Tucson, Arizona, May 21-25, 1990. It was a very successful meeting, attracting more than 400 scientists and engineers. The scientific content of the Congress consisted of 5 general lectures, 14 topical symposia, and 65 contributed paper sessions--a total of 356 technical presentations. It was a busy and scientifically exciting period of four and a half days. We look forward to the next Congress to be held at the University of Washington in 1994.					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS ☐			21. ABSTRACT SECURITY CLASSIFICATION		
22a. NAME OF RESPONSIBLE INDIVIDUAL Phillip B. Abraham		22b. TELEPHONE NUMBER (Include Area Code)		22c. OFFICE SYMBOL 1132SM	