

*Aspen Center for Physics*

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**AD-A259 809**



January 6, 1993

Ms. Pam J. Trego  
Office of Naval Research  
Bandelier Hall West  
University of New Mexico  
Albuquerque, NM 87131

**DTIC  
ELECTE  
JAN 19 1993  
S E D**

Re: Grant N00014-92-J-1383

Dear Ms. Trego:

Enclosed find the following documents relating to the above grant:

- One copy of SF269
- One final Statement of Accounts
- One copy of SF298, with final report attached

No property was acquired in the performance of this grant.

This report is being distributed as follows:

- 3 copies to Donald Liebenberg
- 1 copy to the Defense Technical Information Center

If you have any questions, please do not hesitate to call or fax me. My phone is (904) 392-5704, and my FAX is (904) 392-8743.

Sincerely yours,

*P. Ramond*

P. Ramond  
Treasurer, ACP

PR/pyd

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**93-00762**



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Distribution Unlimited

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# FINANCIAL STATUS REPORT

(Follow instructions on the back)

|                                                                                                                                                 |  |                                                                                                                                        |  |                                                                           |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|--|
| <b>3. RECIPIENT ORGANIZATION</b> (Name and complete address, including ZIP code)<br>ASPEN CENTER FOR PHYSICS<br>P.O. Box 1206<br>ASPEN CO 81612 |  | <b>1. FEDERAL AGENCY AND ORGANIZATIONAL ELEMENT TO WHICH REPORT IS SUBMITTED</b><br>OFFICE OF NAVAL RESEARCH<br>DEPARTMENT OF THE NAVY |  | <b>2. FEDERAL GRANT OR OTHER IDENTIFYING NUMBER</b><br>4035911000         |  |
| <b>4. EMPLOYER IDENTIFICATION NUMBER</b><br>84-6054504                                                                                          |  | <b>5. RECIPIENT ACCOUNT NUMBER OR IDENTIFYING NUMBER</b><br>4035911000                                                                 |  | <b>6. FINAL</b> <input checked="" type="checkbox"/> <b>PERIOD COVERED</b> |  |
| <b>8. FROM (Month, day, year)</b><br>Dec 1, 1991                                                                                                |  | <b>9. TO (Month, day, year)</b><br>Nov 30, 1992                                                                                        |  | <b>FROM (Month, day, year)</b><br>Dec 1, 1991                             |  |

  

| STATUS OF FUNDS                                                        |                                                                    |     |     |     |     |     |
|------------------------------------------------------------------------|--------------------------------------------------------------------|-----|-----|-----|-----|-----|
| PROGRAMS/FUNCTIONS/ACTIVITIES ▶                                        | (a) ASPEN WORKING ON FUTURE PROGRAMS IN LOW TECHNOLOGICAL PROJECTS | (b) | (c) | (d) | (e) | (f) |
| 1. Net outlays previously reported                                     | \$ 0                                                               | \$  | \$  | \$  | \$  | \$  |
| 2. Total outlays this report period                                    | 24,916                                                             |     |     |     |     |     |
| 3. Less: Program income credits                                        | 0                                                                  |     |     |     |     |     |
| 4. Net outlays this report period (Line b minus line c)                | 24,916                                                             |     |     |     |     |     |
| 5. Net outlays to date (Line a plus line d)                            | 24,916                                                             |     |     |     |     |     |
| 6. Less: Non-Federal share of outlays                                  | 13,416                                                             |     |     |     |     |     |
| 7. Total Federal share of outlays (Line e minus line f)                | 11,500                                                             |     |     |     |     |     |
| 8. Total unliquidated obligations                                      | 0                                                                  |     |     |     |     |     |
| 9. Less: Non-Federal share of unliquidated obligations shown on line h | 0                                                                  |     |     |     |     |     |
| Federal share of unliquidated obligations                              | 0                                                                  |     |     |     |     |     |
| 10. Total Federal share of outlays and unliquidated obligations        | 11,500                                                             |     |     |     |     |     |
| Total cumulative amount of Federal funds authorized                    | 11,500                                                             |     |     |     |     |     |
| 11. Unobligated balance of Federal funds                               | 0                                                                  |     |     |     |     |     |

  

|                                                                                                                                                     |                                                          |                                           |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------|----------------------------------|
| 1. DIRECT EXPENSE                                                                                                                                   | <b>a. TYPE OF RATE</b><br>(Place "X" in appropriate box) |                                           | <b>d. TOTAL AMOUNT</b><br>13,376 |
|                                                                                                                                                     | <input type="checkbox"/> PROVISIONAL                     | <input checked="" type="checkbox"/> FINAL |                                  |
| 2. REMARKS: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation. | <b>b. RATE</b><br>\$76/paid-week                         |                                           | <b>e. FEDERAL SHARE</b><br>0     |
|                                                                                                                                                     | <b>c. BASE</b><br>\$76/paid-week                         |                                           |                                  |

  

|                                                                                                                                                                                                                                |                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>13. CERTIFICATION</b><br>I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays and unliquidated obligations are for the purposes set forth in the award documents. | <b>SIGNATURE OF AUTHORIZED OFFICIAL</b><br> |
| <b>TYPED OR PRINTED NAME AND TITLE</b><br>P. RAMUND, TREASURER                                                                                                                                                                 |                                                                                                                               |

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# ASPEN CENTER FOR PHYSICS

Final Statement of Accounts  
ONR Grant N00014-92-1383

| <u>Description</u>                        | <u>Budget</u>   | <u>Expended</u> |
|-------------------------------------------|-----------------|-----------------|
| Junior and Foreign<br>Participant Support | \$10,000        | \$10,075        |
| Mailing                                   | \$ 500          | \$ 462          |
| Secretarial expenses                      | <u>\$ 1,000</u> | <u>\$ 963</u>   |
| Total                                     | \$11,500        | \$11,500        |

|                     |                                     |
|---------------------|-------------------------------------|
| Accession For       |                                     |
| NTIS CRA&I          | <input checked="" type="checkbox"/> |
| DTIC TAB            | <input type="checkbox"/>            |
| Unannounced         | <input type="checkbox"/>            |
| Justification _____ |                                     |
| By _____            |                                     |
| Distribution /      |                                     |
| Availability Codes  |                                     |
| Dist                | Avail and/or<br>Special             |
| A-1                 |                                     |

DTIC QUALITY INSPECTED 5



**SUMMARY OF THE 1992 WINTER ACP WORKSHOP**  
**ON**  
**FUTURE TRENDS IN LOW TEMPERATURE PHYSICS**

The one week workshop took place in Aspen January, 1992 and was attended by 76 physicists. It was very successful in gathering the best physicists in the world on that subject and provided a natural environment for discussions among experimentalists and theorists.

# **FUTURE TRENDS IN LOW TEMPERATURE PHYSICS**

ASPEN WINTER CONFERENCE ON CONDENSED MATTER PHYSICS, 1992

The morning sessions will begin at 7:45 am and are expected to last until 10:30 am. All of the talks will be 40 minutes in length with 10 minutes for discussion. There will be a 15 minute coffee break after the second lecture at 9:25 am. The evening sessions will begin at 5:00 pm. Because of the Public Lecture on Wednesday, there will be no evening session on that day.

## **Monday Morning-Chair: J. Reppy**

M. Chan                    "Boson Localization and the Onset of Superfluidity of  $^4\text{He}$  in Vycor"

G. Ahlers                "Critical Phenomena in the  $^4\text{He}$ -Aerogel System"

D. Fisher                "Quantum Phase Transitions in Random Media"

## **Monday Evening-Chair: F. Gasparini**

R. Richardson        " $^3\text{He}$  on Surfaces"

S. Chu                    "Laser Cooling and Manipulation of Neutral Particles"

## **Tuesday Morning-Chair: A. Goldman**

I. Silvera                "Pressing for Metallic Hydrogen: Experimental and Theoretical Challenges"

R. Webb                "Persistent Currents in Normal Metal Rings"

C. Gould                "Is the A Phase Really 'The A Phase'?"

## **Tuesday Evening-Chair: R. Hallock**

A. Tonomura            "Electron Holography of Flux Lines"

G. Ihas                    "Phase Slips and Vortex Nucleation and Motion in Superfluid  $^4\text{He}$  Flow"

**Wednesday Morning-Chair: G. Aeppli**

- C. Broholm "Vortex Lattices and Antiferromagnetism in Superconducting  $\text{UPt}_3$ "
- L. Taillefer "Coupling of Magnetic and Superconducting Order Parameters in  $\text{UPt}_3$ "
- Z. Fisk "Kondo Insulators"

**Wednesday Evening, 8pm, Public Lecture: John Clarke**

**Thursday Morning-Chair: H. Bozler**

- A. Leggett "Possible Mechanism of Nucleation of  $^3\text{He-B}$  by High Energy Particles"
- D. Osheroff "Gamma Ray and Neutron Mediation of the Superfluid  $^3\text{He-A}$  to  $^3\text{He-B}$  Transition"
- E. Thuneberg "Nucleation of Vortices and the A-B Interface in Superfluid  $^3\text{He}$ "

**Thursday Evening-Chair: E. Andrei**

- R. Willett "New Phases in the Fractional Quantum Hall Regime"
- B. Altshuler "Persistent Currents as a Persistent Problem"

**Friday Morning-Chair: R. Koch**

- P. Gammel "Statics and Dynamics of Flux Lattices in the Oxide Superconductors"
- M.P.A. Fisher "The Vortex Glass Transition and Melting in the High  $T_c$  Superconductors"
- P. Kes "Studies of Flux Pinning and Creep in Extremely Anisotropic Superconductors"

**Friday Evening-Chair: J. Ketterson**

A. Hebard      " $C_{60}$ :Molecule of the Year"

C. Varma      "Superconductivity in Eulerenes"

**Saturday Morning-Chair: J. Maynard**

D. Ceperley      "Path Integral Simulations of Helium"

I. Affleck      "Quantum Disordered Antiferromagnets"

D. Awschalom      "Quantum Tunneling and Spin Dynamics in  
Nanometer-Scale Magnets"

1992 Aspen Winter Physics Conference  
Condensed Matter Physics  
Participants List

Elihu Abrahams (Rutgers U)  
Gabriel Aeppli (ATT Bell Labs)  
Glenn Agnolet (Texas A&M U)  
James Allen (U Michigan)  
Eva Andrei (Rutgers U)  
Silvia Bacci (Beckman Institute)  
David Bishop (ATT Bell Labs)  
Collin Broholm (Johns Hopkins U)  
Moses Chan (Penn State U)  
Steven Chu (Stanford U)  
Piers Coleman (Rutgers U)  
Alan Dorsey (U Virginia)  
Richard Ferrell, (U Maryland)  
Daniel Fisher (Harvard U)  
Zachary Fisk (LANL)  
Francis Gasparini (SUNY Buffalo)  
Rolfe E. Glover (U Maryland)  
Lori Goldner (NIST)  
Dennis Greywall (ATT Bell Labs)  
William Halperin (Northwestern U)  
Gary Ihas (U Florida)  
Eric Isaacs (ATT Bell Labs)  
John Ketterson (Northwestern U)  
Rafael Kleiman (ATT Bell Labs)  
Donald Liebenberg (ONR)  
Thom Mason (ATT Bell Labs)  
John Mester (Harvard U)  
Michael Nahum (UC Berkeley)  
Douglas Osheroff (Stanford U)  
Emil Polturak (Technion)  
John Reppy (Cornell U)  
Zack Schlesinger (IBM)  
Louis Taillefer (Grenoble)  
Akira Tonomura (Hitachi Ltd.)  
Andrew Tyler (Manchester)  
Mats Wallin (Indiana U)  
Robert Willett (ATT Bell Labs)  
Claire Yu (UC Irvine)

Philip Adams (Louisiana State U)  
Ian Affleck (U British Columbia)  
Guenter Ahlers (UC Santa Barbara)  
Boris Altshuler (MIT)  
David Awschalom (UC Santa Barbara)  
Alexander Balatsky (LANL)  
Hans Bozler (USC)  
David Ceperley (U Illinois)  
Premi Chandra (NEC)  
John Clarke (UC Berkeley)  
Arnold Dahm (Case Western Reserve U)  
William Evans (Harvard U)  
Herbert Fertig (U Kentucky)  
Matthew Fisher (IBM Watson Labs)  
Peter Gammel (ATT Bell Labs)  
Thierry Giamarchi (ATT Bell Labs)  
Allen Goldman (U Minnesota)  
Chris Gould (USC)  
Bob Hallock (U Massachusetts)  
Arthur Hebard (ATT Bell Labs)  
Masahiko Inui (LANL)  
P.H. Kes (U Leiden)  
Wiley Kirk (Texas A&M U)  
Anthony Leggett (U Illinois)  
Ying Liu (U Colorado)  
Julian Maynard (Pennsylvania State U)  
Eric Meyer (Harvard U)  
Nobuhiko Nishida (Tokyo Inst. of Tech.)  
Jeevak Parpia (Cornell U)  
Khandker Quader (Kent State U)  
Bob Richardson (Cornell U)  
Isaac Silvera (Harvard U)  
Erkki Thuneberg (Helsinki)  
Alexei Tsvetlik (Princeton U)  
C. M. Varma (ATT Bell Labs)  
Richard Webb (IBM Yorktown)  
P. E. Wolf (CRTBT-CNRS)  
Gergely Zimanyi (UC Davis)