

AMERICAN PHYSICAL SOCIETY

OCTOBER 24-27, 1951

Wednesday Afternoon, October 24, at 2:00

HOTEL MORRISON, ROOSEVELT ROOM

PROGRAM OF THE DIVISION OF CHEMICAL PHYSICS

(R. S. Mulliken, presiding)

AA1. Some Contributions to the Theory of Molecular Structure. John E. Lennard-Jones, Cambridge University. (45 min.)

AA2. The Photochemistry of Condensed Systems as Illustrated by the Optical Sensitization of the Photographic Emulsion. W. West, Kodak Research Laboratories. (45 min.)

AA3. The Theory of the Critical Point. Bruno H. Zimm, General Electric Research Laboratories. (45 min.)

Friday Morning, October 26, at 9:30

HOTEL SHERMAN, LOUIS XVI ROOM

SESSION A: NUCLEAR SCATTERING

(S. K. Allison, presiding)

Contributed Papers

A1. The Theory of Neutron Scattering by Gases. N. K. Pope and G. Feldman, Chalk River Laboratory.

A2. Scattering by Bound Particles with Short-Range Interaction Force. H. Ekstein, Illinois Institute of Technology.

A3. Regular Meson Type Potentials in Proton-Proton Scattering. R. D. Hatcher and H. E. Hart, New York University.

A4. Total Cross Sections of Carbon and Hydrogen for 14-Mev Neutrons. H. L. Poss, E. O. Salant, and L. C. L. Yuan, Brookhaven National Laboratory.

A5. Analysis of 14-Mev n - p Scattering. George Snow, Brookhaven National Laboratory.

A6. The Scattering of 30-Mev Alpha-Particles by Helium. E. Graves, Massachusetts Institute of Technology.

A7. Classification of Levels in Al^{25} . L. J. Koester, University of Wisconsin.

A8. Precision Scattering Project. James S. Arthur, A. J. Allen, R. S. Bender, R. L. Ely, H. J. Hausman, L. A. Page, and E. M. Reilley, University of Pittsburgh.

A9. Energy Levels in Al^{27} . E. M. Reilley, A. J. Allen, J. S. Arthur, R. S. Bender, R. L. Ely, and H. J. Hausman, University of Pittsburgh.

A10. Inelastic Scattering of Protons from Nickel. R. L. Ely, A. J. Allen, J. S. Arthur, R. S. Bender, H. J. Hausman, and E. M. Reilley, University of Pittsburgh.

A11. Total Cross Sections of Heavy Nuclei for Fast Neutrons. D. W. Miller, R. E. Fields, and C. K. Bockelman, University of Wisconsin.

A12. The Calculation of High Energy Scattering Cross Sections Using Variational Methods. David S. Saxon, National Bureau of Standards, and E. Gerjuoy, University of Southern California.

Friday Morning, October 26, at 9:30

HOTEL SHERMAN, WEST ROOM

SESSION B: ELECTRON PHYSICS

(N. S. Gingrich, presiding)

Contributed Papers

B1. The Effect of the Thermal Velocity Distribution upon the Behavior of Diodes at Microwave Frequencies. P. Parzen, Federal Telecommunication Laboratories, Inc.

B2. On the Influence of Field on Temperature Saturated Emission from Semiconducting Cathodes. K. Lehovec, Signal Corps Engineering Laboratories.

B3. A Retarding Potential Method of Measuring the Electrical Conductivity of Oxide Coated Cathodes. I. L. Sparks, University of Missouri.

B4. A Study of Evaporated Films of BaO Using Electron Diffraction Techniques. Paul Russell, University of Missouri.

B5. Microwave Propagation Through an Electronic Space-Charge in a Magnetic Field. James R. Hooper, Jr., Harvard University.

B6. Liquid-Filled Ionization Chambers. M. A. Van Dilla, Massachusetts Institute of Technology.

B7. Photoelectric Thresholds in Photon Counters Containing Electronegative Quenching Gases. H. Friedman, T. Chubb, and D. A. Patterson, U. S. Naval Research Laboratory.

B8. Drift Velocity of Electrons in Pure Gases. D. D. Errett and F. F. Rieke, Purdue University.

B9. Drift Velocity of Electrons in Gas Mixtures. F. F. Rieke and D. D. Errett, Purdue University.

B10. Influence of Irradiation on the Characteristic of a Glow Discharge in Pure Rare Gases. K. W. Meissner and W. F. Miller, Purdue University.

B11. The Electric Current Between Flashes of the Intermittent Glow Discharge in H_2 . Herman Ritow, Northwestern University.

B12. Spectroscopic Investigations of Pulsed Gas Discharges. W. R. Atkinson, R. G. Fowler, L. W. Marks, and G. W. Charles, University of Oklahoma.

SP2. Clustering of Ions. Henry Margenau and Stanley Bloom, Yale University. (Supplementary Program.)

Friday Morning, October 26, at 9:30

HOTEL SHERMAN, GREY ROOM

SESSION C: CHEMICAL PHYSICS

(J. E. Mayer, presiding)

Contributed Papers

C1. Direct Measurement of Ionization Probability and Appearance Potential Using a Mass Spectrometer. R. E. Fox, W. M. Hickam, T. Kjeldas, Jr., and D. J. Grove, Westinghouse Research Laboratories.

C2. Van der Waals Forces in Magnetic Fields. Henry Margenau and D. E. Harrison, Yale University.

C3. Calculations of the Diamagnetic Susceptibility of N_2 . J. V. Bonet and A. V. Bushkovitch, Saint Louis University.

C4. Excitation and De-Excitation of the Vibrational Motion of Hydrogen Molecules by Slow Hydrogen Atoms. E. Bauer, National Research Laboratories.

C5. Raman and Infrared Spectral Data, Force Constants, and Thermodynamic Properties for Dibromodichloromethane. Abram Davis, Forrest F. Cleveland, and Arnold G. Meister, Illinois Institute of Technology.

C6. Decomposition of Di-*t*-butyl Peroxide and Kinetics of the Gas Phase Reactions of *t*-butoxy Radicals in the Presence of Ethylenimine. David H. Volman and Robert K. Brinton, University of California at Davis.

C7. Infrared Absorption by Asymmetrical Spectral Lines. Gilbert N. Plass and Douglas Warner, The Johns Hopkins University.

C8. Computation of Infrared Intensities. Frank Matossi, Naval Ordnance Laboratory.

C9. Theory of Dielectric Dispersion. Marius Cohn, University of Illinois.

C10. Proton Magnetic Resonance Absorption and Water Content of Biological Materials. T. M. Shaw, R. H. Elksen, and C. H. Kunsman, Western Regional Research Laboratory.

C11. Biassed Random Walks in Classical, Statistical, and Quantum Mechanics. Gilbert W. King, of Arthur D. Little, Inc., and Massachusetts Institute of Technology.

C12. An Apparatus for Creep and Low Frequency Dynamic Studies on Polymers. T. E. Morrisson and T. W. DeWitt, Mellon Institute.

C13. Measurements of Components of Stress Produced by Shearing Strain. E. H. Frei, Weizmann Institute of Science.

Friday Morning, October 26, at 9:30

HOTEL SHERMAN, CRYSTAL ROOM

SESSION D: METALS

(A. W. Lawson, presiding)

Contributed Papers

D1. Solid State Diffusion in Cylindrical Geometry. David D. Van Horn, Knolls Atomic Power Laboratory.

D2. Cathodic Sputtering as a Sectioning Method in Diffusion Studies. Thomas F. Fisher, Knolls Atomic Power Laboratory.

D3. Experimental Evidence for the Vacancy Mechanism for Diffusion in Metals and Alloys. Foster C. Nix and Frank E. Jaumot, Jr., University of Pennsylvania.

D4. X-ray Study of Lattice Imperfections. P. H. Miller, Jr., University of Pennsylvania.

D5. An Electron Microscope and Diffraction Study of the Aging of Evaporated Metal Films. E. J. Scheibner, Illinois Institute of Technology.

D6. Tracer Method for Measurement of Evaporated Bi Film Thicknesses. John J. Antal and A. H. Weber, St. Louis University.

D7. Temperature Dependence of Internal Friction at 44kc. W. B. Nowak, Massachusetts Institute of Technology.

D8. Effect of Plastic Deformation on Anelastic Properties of Alpha-Brass. John Kauffman and David Lazarus, University of Illinois.

D9. Temperature Dependence of the Resistivity of Deuteron Irradiated and Annealed Molybdenum. Burton Randolph, Purdue University.

D10. Statistical Theory of Properties of Solid Solutions. R. Smoluchowski, Carnegie Institute of Technology.

D11. Thermal Conductivity of Metals. P. H. Sidles and G. C. Danielson, Iowa State College.

D12. Optical Properties of Sodium Tungsten Bronze. G. C. Danielson and E. Chivers, Iowa State College.

D13. Design of Extensometer for Creep Studies. R. Pizzaro and B. Gossick, Purdue University.

Friday Morning, October 26, at 9:30

HOTEL MORRISON, MURAL ROOM

SESSION E: NUCLEAR INSTRUMENTATION

(A. O. Nier, presiding)

Contributed Papers

E1. Resolution of Fast Neutron Energy Measurements Using Proton Recoils from a Thin Radiator. Ben R. Gossick, Purdue University.

E2. A Crystal Spectrometer for Neutrons. L. B. Borst and V. L. Sailor, Brookhaven National Laboratory.

E3. Scintillation Neutron Detector. William Bernstein and A. W. Schardt, Brookhaven National Laboratory.

E4. Performance of 5819 Photomultipliers in Scintillation Spectrometers. A. S. Schardt and William Bernstein, Brookhaven National Laboratory.

E5. Monitor for Natural Radioactivity in the Atmosphere. M. H. Wilkening, New Mexico Institute of Mining and Technology.

E6. A Combination Cloud-Ion Chamber Using Cylindrical Geometry. Fielding Brown, R. R. Rau, and George T. Reynolds, Princeton University.

E7. Scattering of Light from Small Drops. Richard L. Lander and C. E. Nielsen, Ohio State University.

E8. Special Techniques for Processing Thick Nuclear Emulsions. Bertram Stiller, Maurice M. Shapiro, and Francis W. O'Dell, Naval Research Laboratory.

E9. A Combination Crossed-Field and Time-of-Flight Mass Spectrometer. J. A. Hipple and H. Sommer, National Bureau of Standards.

E10. The University of Kansas Van de Graaff Generator. L. W. Seagondollar, R. K. Smith, W. R. Alexander, and J. W. Teenor, The University of Kansas.

E11. The Oak Ridge 86-in. Cyclotron. Robert S. Livingston, Oak Ridge National Laboratory.

E12. Operating Current and Energy of the M.I.T. Linear Electron Accelerator. M. Labitt, R. J. Debs, I. Halpern, and P. T. Demos, Massachusetts Institute of Technology.

Friday Afternoon, October 26, at 2:00

HOTEL SHERMAN, WEST ROOM

SESSION F: MAGNETISM; LOW TEMPERATURES

(J. H. Van Vleck, presiding)

Contributed Papers

- F1. Ferromagnetic Domain Structure of Single Crystals and Bicrystals of Nickel. Ursula M. Martius, K. V. Gow, and Bruce Chalmers, University of Toronto.
- F2. Effect of Stress on the Curvature of Domain Boundaries. H. J. Williams and R. M. Bozorth, Bell Telephone Laboratories.
- F3. Strain Induced Curvature of Bloch Walls in Silicon Iron. L. J. Dijkstra and U. Martius, Ontario Research Foundation.
- F4. Magnetically Induced Ultrasonic Velocity Changes in Polycrystalline Nickel. S. J. Johnson, Andersen Laboratories, and T. F. Rogers, Cambridge Research Center.
- F5. Approximate Treatment of Order-Disorder Transitions in the Triangular Ising Lattice. L. D. Fosdick and H. M. James, Purdue University.
- F6. Statistics of the Three-Dimensional Ferromagnet. B. Martin, D. ter Haar, and V. A. Johnson, Purdue University.
- F7. An Approximate Quantum Theory of the Antiferromagnetic Ground State. P. W. Anderson, Bell Telephone Laboratories.
- F8. On Generalizations of the Weiss Molecular Field Theory of Antiferromagnetism. J. Samuel Smart, U. S. Naval Ordnance Laboratory.
- F9. The Magnetic Susceptibility of Zinc at Liquid Nitrogen Temperatures. J. W. McClure, Northwestern University.
- F10. Specific Heats of Several Metals and Semiconductors Between 1.8 and 4.2° K. I. Estermann and S. A. Friedberg, Carnegie Institute of Technology.
- F11. Some Observations on the Superconductive Transition in Pure Metals. W. F. Love, University of Pennsylvania.
- F12. Meissner Effect in Alloys of In-Tl and Sn-Bi. E. Callen, W. F. Love, and F. C. Nix, University of Pennsylvania.
- F13. The Melting Curve of He³. D. W. Osborne, B. M. Abraham, and B. Weinstock, Argonne National Laboratory.

Friday Afternoon, October 26, at 2:00

HOTEL SHERMAN, CRYSTAL ROOM

SESSION G: SPECTROSCOPY; RADIO FREQUENCIES TO X-RAYS

(J. R. Platt, presiding)

Contributed Papers

- G1. On a Multiple Scattering Theory of the Grating and the Wood Anomalies. Vic Twersky, New York University.
- G2. The Arc Spectrum of Germanium. Kenneth L. Andrew and K. W. Meissner, Purdue University.
- G3. Long Forbidden s - ns Series in RbI. J. E. Mack, University of Wisconsin.
- G4. K -Excitation Potentials of the Elements. G. L. Rogosa, Florida State University.

G5. The Nuclear Spin of Cl³⁵ from the Microwave Spectrum of C¹²H₃Cl³⁶. D. A. Gilbert, State University of Iowa.

G6. The Nuclear Moment and Hyperfine Structure Anomaly of K⁴⁰. Joseph T. Eisinger and Benjamin Bederson, Massachusetts Institute of Technology.

G7. Quadrupole Moment of the Electron Distribution in the Hydrogen Molecule. N. J. Harrick, R. G. Barnes, and P. J. Bray, Harvard University.

G8. Sign Determination for Molecular Magnetic Moments. C. K. Jen, J. W. B. Barghausen, and R. W. Stanley, The Johns Hopkins University.

G9. Pressure-Broadening of Absorption Lines. Stanley Bloom and Henry Margenau, Yale University.

G10. Further Studies of I -Type Doubling Transitions in HCN and DCN. Thomas L. Weatherly, Edward R. Manring, and Dudley Williams, The Ohio State University.

G11. The Microwave Spectrum of a Slightly Aspherical Top—The Structure and Dipole Moment of Sulfuryl Fluoride. Robert M. Fristrom, Harvard University.

G12. Microwave Spectrum and Structure of Ozone. Richard H. Hughes, Westinghouse Corporation.

G13. Microwave Absorption Spectrum of H₂O₂. J. T. Massey and D. R. Bianco, The Johns Hopkins University.

Friday Afternoon, October 26, at 2:00

HOTEL SHERMAN, LOUIS XVI ROOM

SESSION H: MESONS AND COSMIC RAYS

(Enrico Fermi, presiding)

Contributed Papers

- H1. The Interaction of Charged π Mesons with the Deuteron. W. B. Cheston, University of Rochester.
- H2. Charged π Meson Production in D and Pb at 90° from a 381-Mev Proton Beam. M. M. Block, S. Passman, and W. W. Havens, Jr., Columbia University.
- H3. Interactions of π -Mesons in Carbon. H. Byfield, J. Kessler, and L. Lederman, Columbia University.
- H4. Elastic Scattering of Negative Pions in Carbon. P. Isaacs, A. Sachs, and J. Steinberger, Columbia University.
- H5. Lifetime of the π -Meson. L. Lederman, H. Byfield, and J. Kessler, Columbia University.
- H6. A Photographic Study of $\pi \rightarrow \mu \rightarrow \beta$ -Decay. H. J. Bramson, A. M. Seifert, and W. W. Havens, Jr., Columbia University.
- H7. Annihilation Radiation from μ^+ Mesons. M. H. Johnson, Naval Research Laboratory.
- H8. Relative Pair Production Cross Section in the Region 50 to 300 Mev. C. R. Emigh, University of Illinois.
- H9. Penetrating Showers under Hydrogen and Heavier Elements Observed in a Cloud Chamber at Sea Level. A. B. Weaver and Marcel Shein, University of Chicago.
- H10. A Study of Penetrating Showers Produced in Be, Carbon, and Lead at Sea Level. L. Grodzins, G. Del Castillo, and W. Y. Chang, Purdue University.
- H11. Two Cosmic-Ray Decreases Associated with the Geomagnetic Storms and Sunspot Activity of May and June, 1951. R. L. Chasson, University of California.

H12. Analysis of the Nucleonic Component Using Neutron Latitude Variations. S. B. Treiman, University of Chicago.

H13. Experiments on the Solar-Produced Component of the Cosmic Radiations. J. A. Simpson, W. Fonger, and L. Wilcox, University of Chicago.

H14. Heavy Metal Cosmic-Ray Primaries. Herman Yagoda, National Institutes of Health.

Friday Afternoon, October 26, at 2:00

HOTEL SHERMAN, GREY ROOM

SESSION I: GENERAL PHYSICS; THEORETICAL

(Gregor Wentzel, presiding)

Contributed Papers

I1. Classical Meson Theory and Action at a Distance. Peter Havas, Lehigh University.

I2. The Contribution of Interaction Moments to Nuclear Magnetic Moments. Marc Ross, University of Wisconsin.

I3. Covariant Theory of Damping. J. C. Pirene, National Research Council, Canada.

I4. On the Thermodynamics of Fields. A. E. Scheidegger and C. D. McKay, Queen's University.

I5. On an Extension of the Classical Infinitesimal Group of Canonical Transformations. D. C. Rivier, National Research Council, Canada.

I6. On the Geometry of the Group-Space of the Proper Lorentz Group. E. J. Schremp, Naval Research Laboratory.

I7. A Remark on the Fundamental Reversibility and the Phenomenological Irreversibility. Satoshi Watanabe, Wayne University.

I8. Do Coulomb Fields Signal Faster than Light? D. I. Caplan and F. J. Belinfante, Purdue University.

I9. Gauge-Independent Quantized Bopp Theory. Frederick J. Belinfante, Purdue University.

I10. Information, Logic, and Physics. Jerome Rothstein, Evans Signal Laboratory.

I11. A Relation Between Planck's Constant and the Gravitational Constant. B. Liebowitz, New York City. (By Title Only.)

SP1. Phenomenological Theory of Lamb Shift. Frederick J. Belinfante, Purdue University. (Supplementary Program.)

Friday Afternoon, October 26, at 2:00

HOTEL MORRISON, MURAL ROOM

SESSION J: TOPICS IN NUCLEAR PHYSICS

(J. C. Boyce, presiding)

Invited Papers

J1. Evidence for Strong Spin Orbit Coupling from the Low States of Light Nuclei. R. K. Adair, The University of Wisconsin. (30 min.)

J2. Recent Experiments in Neutron Physics: Neutron-Proton Capture Cross Section; Neutron-Electron Interaction; Total Cross Sections in the Kev Region; Capture Gamma Rays. Bernard Hamermesh, Argonne National Laboratory. (30 min.)

J3. Systematics of Isomer Energy Levels. R. D. Hill, University of Illinois. (30 min.)

J4. Beta Spectra. Lawrence M. Langer, University of California, Los Alamos Scientific Laboratory. (30 min.)

Saturday Morning, October 27, at 9:30

HOTEL SHERMAN, CRYSTAL ROOM

SESSION K: SEMICONDUCTORS I

(K. Lark-Horovitz, presiding)

Contributed Papers

K1. Quantum Theory of the Internal Field in an Idealized Crystal. D. L. Dexter and W. R. Meller, University of Illinois.

K2. Electronic States in Crystals under Large Overall Perturbations. Paul Feuer and Hubert M. James.

K3. Experimentally Derived Configurational Coordinate Curves. Clifford C. Klick, Naval Research Laboratory.

K4. Pulse-Heating of Bulk Semiconductors. J. Hirsch and R. B. McQuistan, Purdue University.

K5. The Effect of Certain Group IV Oxides on the Permittivity and Loss Tangent of Barium Titanate. Graham W. Marks and Lester A. Monson, U. S. Navy Electronics Laboratory.

K6. Isotope Effect in RbD_2PO_4 . B. T. Matthias, Bell Telephone Laboratories.

K7. Optical and Electrical Behavior of Lanarkite. L. M. Roth, K. W. Meissner, and K. Lark-Horovitz, Purdue University.

K8. Magnetoresistive Effect in Impurity Semiconductors. W. J. Whitesell, II, and V. A. Johnson, Purdue University.

K9. Comparison of the Adiabatic and Isothermal Hall Effects. V. A. Johnson and F. L. Shipley, Purdue University.

Saturday Morning, October 27, at 9:30

HOTEL SHERMAN, GREY ROOM

SESSION L: NUCLEAR PHYSICS; MISCELLANEOUS TOPICS

(M. Goeppert-Mayer, presiding)

Contributed Papers

L1. Absolute Backscattering Coefficients for Positrons and Electrons. Howard H. Seliger, National Bureau of Standards.

L2. Measurements of the Relative Transmission of Beta-Particles Through Geiger-Müller Counter Windows. Chia-hua Chang and C. Sharp Cook, Washington University.

L3. Ranges of High Energy Electrons in Water. J. Ovadia, J. W. Beattie, and J. S. Laughlin, University of Illinois.

L4. The Energy Loss of Monoenergetic Electrons in Carbon and Water. John I. Lodge and Frank L. Hereford, University of Virginia.

L5. Calorimetric Determination of the Roentgen for 400kv X-rays. J. S. Laughlin, J. W. Beattie, and J. Ovadia, University of Illinois.

L6. Calorimetric Calibration of a Secondary Standard for 150-317 Mev Bremsstrahlung. P. D. Edwards, University of Illinois.

L7. The "Effective" Atomic Numbers of Materials for Various γ -Ray Interactions. G. J. Hine, Massachusetts Institute of Technology.

L8. The Neutrons from the Disintegration of the Separated Isotopes of Silicon by Deuterons. C. E. Mandeville, C. P. Swann, and S. D. Chatterjee, Bartol Research Foundation of the Franklin Institute.

L9. The Angular Distribution of Prompt Neutrons in the Fission of Pu^{239} . J. S. Fraser, Chalf River Laboratory.

L10. New Medium Mass α -Emitters. K. H. Sun, F. A. Pecjak, and B. Jennings, Westinghouse Research Laboratories, and A. J. Allen, University of Pittsburgh.

L11. On the Fine Structure of the Alpha Particles of Po^{210} . S. De Benedetti and G. H. Minton, Carnegie Institute of Technology.

L12. Atomic Masses of Titanium, Vanadium, and Chromium. T. L. Collins, A. O. Nier, and W. H. Johnson, Jr., University of Minnesota.

L13. Atomic Masses of Xenon, Iodine, and Some Isotopes of Tin. R. E. Halsted, University of Minnesota.

Saturday Morning, October 27, at 9:30

HOTEL SHERMAN, WEST ROOM

SESSION M: GAMMA-RAYS

(D. W. Kerst, presiding)

Contributed Papers

M1. Gamma-Gamma Coincidence Absorption and Angular Correlation of I^{131} . Daniel Schiff, University of Illinois.

M2. Gamma-Gamma Coincidences in " Cs^{137} " and Fe^{59} . Franz R. Metzger, University of Illinois.

M3. Angular Correlation of Rh^{106} . J. J. Kraushaar, Brookhaven National Laboratory.

M4. Angular Correlation Between Inelastically Scattered Protons and Gamma-Rays from the 1.4-Mev Level in Mg^{24} . H. E. Gove and A. Hedgran, Massachusetts Institute of Technology.

M5. Capture γ -Rays from Protons on N^{14} . C. H. Johnson, C. D. Moak, and G. P. Robinson, Oak Ridge National Laboratory.

M6. Photodisintegration Thresholds of Beryllium and Deuterium. J. C. Noyes, J. E. Van Hoomissen, W. C. Miller, and B. Waldman, University of Notre Dame.

M7. $\text{Cu}(\gamma, d):(\gamma, p)$ Ratio. Warren H. Smith, Iowa State College.

M8. Photoprotons from Bismuth. M. Elaine Toms and William E. Stephens, University of Pennsylvania.

M9. Angular Distribution of Photofission Fragments from Thorium. E. J. Winhold, P. T. Demos, and I. Halpern, Massachusetts Institute of Technology.

M10. Photofission of Uranium. Roger E. Anderson and Robert B. Duffield, University of Illinois.

M11. Gamma-Ray Absorption Coefficients in the 5-10 Mev Energy Range. E. S. Rosenblum, E. F. Shrader, and R. M. Warner, Case Institute of Technology.

Saturday Morning, October 27, at 9:30

HOTEL SHERMAN, LOUIS XVI ROOM

SESSION N: INVITED PAPERS

(J. H. Van Vleck, presiding)

N1. Unesco and International Cooperation in the Physical Sciences. Ronald Fraser, International Council of Scientific Unions. (20 min.)

N2. Photoelastic Analysis of Ultrasonic Waves. E. A. Hiedemann, Michigan State College. (30 min.)

N3. Recent Experiments with the University of Michigan Shock Tube. Otto Laporte, University of Michigan. (30 min.)

N4. The Interaction of π Mesons with Protons. Herbert L. Anderson, University of Chicago. (30 min.)

Saturday Afternoon, October 27, at 2:00

HOTEL SHERMAN, CRYSTAL ROOM

SESSION O: SEMICONDUCTORS II

(John Bardeen, presiding)

Contributed Papers

O1. Energy Levels in KCl. L. G. Parratt and E. L. Jossem, Cornell University.

O2. Anionic Self-Diffusion and Electrical Conduction in Sodium Bromide. H. W. Schamp, Jr.

O3. The Effect of Pressure on the Position of the F-Band in Alkali Halides. E. Burstein, J. J. Oberly, and J. W. Davisson, Naval Research Laboratory.

O4. Rectification Effects in Diamond. G. W. Curl and G. C. Danielson, Iowa State College.

O5. Infrared Absorption of Nucleon-Bombarded Silicon I. M. Becker, H. Y. Fan and K. Lark-Horovitz, Purdue University.

O6. Infrared Absorption of Nucleon-Bombarded Silicon II. H. Y. Fan, Purdue University.

O7. Atomic Heat of Silicon and Germanium at Very Low Temperatures. P. H. Keesom and Norman Pearlman, Purdue University.

O8. Pressure Dependence of Zener Current in Germanium. K. B. McAfee, W. Shockley, and M. Sparks, Bell Telephone Laboratories.

O9. Evidence of Hole Traps in Ge Produced by Fast Neutron Bombardment. J. H. Crawford, Jr., J. W. Cleland, K. Lark-Horovitz, J. C. Pigg, and F. W. Young, Jr., Oak Ridge National Laboratory.

O10. Calculation of the Specific Heat of Ge. Yü-Chang Hsieh, Purdue University.

O11. An Automatic Multirange Recording Device for Measuring Varying Potentials. J. C. Pigg, Oak Ridge National Laboratory.

Saturday Afternoon, October 27, at 2:00

HOTEL SHERMAN, GREY ROOM

SESSION P: GENERAL PHYSICS

(F. W. Loomis, presiding)

Contributed Papers

P1. Development of Ultra Compact, Ultra High Speed Digital Computers, II. Donald H. Jacobs, Michael May, and Seymour Scholnick, The Jacobs Instrument Co.

P2. A Stabilized Synchronous Amplifier. R. G. Nuckolls and L. J. Rueger, National Bureau of Standards.

P3. A Crutuck-Flow Pneumatic Hygrometer. W. A. Wildhack, T. A. Perls, and J. W. Hayes, National Bureau of Standards.

P4. Distribution of Potential in an Electrically Excited Nonhomogeneous Medium. Lachlan Gilchrist, University of Toronto.

P5. Propagation of Short Radio Waves Well Beyond the Horizon. Thomas J. Carroll, National Bureau of Standards.

P6. Electromagnetic Field Measurements in the Plane of a Circular Aperture. Robert E. Houston and Robert H. Noble, Michigan State College.

P7. Velocities of Ionized Air Shocks Near Detonating Explosives. J. Savitt and R. H. Stresau, Jr., U. S. Naval Ordnance Laboratory.

P8. Synchronized Rotating Mirror System. Richard G. Fowler and Robert J. Lee, University of Oklahoma.

Saturday Afternoon, October 27, at 2:00

HOTEL SHERMAN, LOUIS XVI ROOM

SESSION Q: BETA-DECAY, NUCLEAR ISOMERISM, ETC.

(A. C. G. Mitchell, presiding)

Contributed Papers

Q1. Empirical Analysis of Nuclear Shell Effects in Beta-Energetics. C. D. Coryell, R. A. Brightsen, and A. C. Pappas, Massachusetts Institute of Technology.

Q2. Atomic Binding Energy Considerations in Negative Beta-Decay. H. M. Schwartz, University of Arkansas.

Q3. The K-Auger Yield for Ba. C. D. Broyles and S. K. Haynes, Vanderbilt University.

Q4. Proposed Methods for Determining K-Capture Partial Lifetimes. A. J. Saur and H. M. Schwartz, University of Arkansas.

Q5. Beta-Spectra of Ce^{144} and Pr^{144} . Fred T. Porter and C. Sharp Cook, Washington University.

Q6. Relative Internal Conversion in the L Sub-shells. J. W. Mihelich and E. L. Church, Brookhaven National Laboratory.

Q7. 514-keV Energy Level of Rubidium 85. W. S. Emmerich and J. D. Kurbatov, Ohio State University.

Q8. Isomerism of Sr^{88} . A. W. Sunyar, J. W. Mihelich, G. Scharff-Goldhaber, M. Deutsch, and M. Goldhaber, Brookhaven National Laboratory.

Q9. Disintegration Scheme of Lu^{176m} . G. Scharff-Goldhaber, E. der Mateosian and J. W. Mihelich, Brookhaven National Laboratory.

Q10. The Radioactivity Decay of Te^{125m} . P. Axel and J. C. Bowe, University of Illinois.

Q11. The Second Transition in the Decay of Sn^{119m} . J. C. Bowe and P. Axel, University of Illinois.

Q12. The Decay of Rh^{106} . David M. Alburger, Brookhaven National Laboratory.

Q13. A Clarification of the Radioactivity of Nd^{151} and Pm^{151} . W. C. Rutledge, J. M. Cork, and S. B. Burson, Argonne National Laboratory.

Q14. Mass Designation of the 51.5 Min—Tc Isomer. Heinrich A. Medicus and Harry T. Easterday, University of California at Berkeley.

Saturday Afternoon, October 27, at 2:00

HOTEL SHERMAN, WEST ROOM

JOINT SYMPOSIUM OF THE AMERICAN PHYSICAL SOCIETY AND THE PHILOSOPHY OF SCIENCE ASSOCIATION

(H. Margenau, presiding)

R1. Inductive Logic and Science. R. Carnap, University of Chicago. (45 min.)

R2. Philosophical Interpretations of Modern Physics. P. Frank, Harvard University. (45 min.)

R3. Quantum Measurement as an Amplifying Process. W. M. Elsasser, University of Utah. (45 min.)

AMERICAN ASSOCIATION OF PHYSICS TEACHERS

OCTOBER 26-27, 1951

Friday Morning, October 26, at 9:30

HOTEL SHERMAN, BAL TABARIN ROOM

(M. W. Zemansky, presiding)

Contributed Papers (10 minutes each)

1. Some Applications of Physics in the Manufacture of Electron Tubes. Donald C. Martin, Marshall College.

2. Hauksbee's Early 18th Century Triboelectric Generator. Duane Roller, Wabash College, and Duane H. D. Roller, Harvard University.

3. Technical Transfer-Training Technique. Frank A. Petry, West Los Angeles, California.

Invited Papers

A. Photoelasticity and Photoplasticity. Demonstration lecture on methods of stress analysis by polarized light. M. Hetenyi, Northwestern University Technological Institute.

B. Solar Disturbances (Motion pictures). R. R. McMath, The McMath-Hulbert Observatory.

Friday Afternoon, October 26, at 2:00

HOTEL SHERMAN, BAL TABARIN ROOM

(W. S. Webb, presiding)