

Finding Aid for the Eugene Feenberg Papers

Descriptive Summary

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Creator: Eugene Feenberg.

Title: Eugene Feenberg Papers.

Dates: 1935 – 1977.

Quantity: 7.0 linear feet.

Language: English.

Biographical Note

Eugen Feenberg (1906-77) was Wayman Crow Professor of Physics at Washington University in St. Louis from 1946 to 1977 and is regarded as a highly pivotal figure in the promotion of many-body physics. Feenberg gained great notoriety and international praise for his timely contributions to the areas of quantum fluids, quantum mechanics, nuclear shell structure, elementary excitations, energy perturbation, and helium atoms.

Eugene Feenberg was born in Fort Smith, Arkansas in 1906 and raised in Dallas, Texas. As a self-supporting student at the University of Texas in Austin, he completed both bachelor's and master's degrees in physics within three years, graduating with top honors. Eugene then journeyed to Harvard to study for the Ph.D. under Edwin C. Kemble, author of an early American text on quantum mechanics. His thesis, written in 1933 after a year in Europe as a Parker Traveling Fellow, presented the first statement and proof of the optical theorem for quantum scattering.

During the remainder of the pre-war period, he held positions as Instructor at Harvard, Lecturer at Madison, and Fellow at the Institute for Advanced Study in Princeton, joining the faculty at NYU in 1938. During World War II he participated in radar research at Sperry Gyroscope Corporation. In 1946, Feenberg accepted a faculty position at Washington University in St. Louis, where he remained the rest of his life, becoming Wayman Crow Professor of Physics in 1964 -- a Chair previously occupied by such eminent scientists as Arthur H. Compton, Arthur L. Hughes, and Edward U. Condon. He was member of the National Academy of Sciences.

Eugene Feenberg was a pioneer in the application of non-relativistic quantum mechanics to many-particle systems. His contributions to nuclear theory, to approximation methods, and to the theory of strongly correlated quantum fluids have become part of the enduring fabric of physics.

Working with Breit and Wigner in the mid-1930s, Feenberg was among the first to document the charge independence of the nuclear force and to interpret it as a new symmetry of nature. In the immediate postwar period, Feenberg laid a sound basis for the development of modern nuclear shell theory through comprehensive studies addressing the assignment of orbital configurations on the basis of spins and magnetic moments, the character of nuclear transitions, and the correlation between shell structure and nuclear isomerism. His important role is exemplified by the appearance of back-to-back letters to the *Physical Review* in 1949, the first by Feenberg, Hammack, and Nordheim, and the second by Maria Goeppert Mayer.

From the late 1950s onward, Feenberg's primary intellectual endeavor was the development of the method of correlated basis functions, a powerful theory aimed at microscopic (i.e., `ab initio') description of the ground and low excited states of strongly correlated many-particle systems under realistic conditions of interaction, density, and temperature. His 1969 book on the "Theory of Quantum Fluids" continues to be a valuable and treasured resource for researchers in many-body physics. Feenberg died in 1977.

Scope and Content Notes

This collection contains the papers, notes, and correspondence of Eugene Feenberg. The material is divided into eight series:

Series 01: Personal and Professional Development (arranged alphabetically by subject)

Series 02: Publications by Feenberg (arranged alphabetically by title)

Series 03: Publications by Others (arranged alphabetically by author's last name)

Series 04: Research Notes (arranged alphabetically by subject)

Series 05: Class Notes and Syllabi by Subject (arranged alphabetically by subject)

Series 06: Class Notes and Syllabi by Class (arranged by class number)

Series 07: Research Proposals and Reports (arranged alphabetically by subject)

Series 08: Correspondence (arranged alphabetically by last name and subject)

Administrative Information

Source of Collection

This material was donated to the University Archives by Hilda (Mrs. Eugene) Feenberg in 1989. Additional material given to University Archives by Professor John Clark, Physics Department, on August 14, 2007.

Accruals

Accruals have been interfiled with the collection.

Processing Information

Compiled collectively by Jay Kempen, Bradley Proctor, and Amy Wilson in August 2002. Updated by Sarah Pabarcus in February 2006.

Restrictions

Access Restrictions

There are no restrictions to access.

Use Restrictions

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Collection Contents

Series 01: Personal and Professional Development (arranged alphabetically by subject)

Box No.	Folder
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01	Biographical Details and Transcript of Interview University of Texas, Austin (Transcript Record Book) Washington University Magazine
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Series 02: Publications by Feenberg (arranged alphabetically by title)

Box No.	Item
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01	" $\pi^{\pm} \rightarrow \pi^0 + e^{\pm} + \gamma + 8m_e c^2$ ", n.d. " $\pi^{\pm} \rightarrow \pi^0 + e^{\pm} + \gamma + 8m_e c^2$ ", 1958 [published] "Analysis of Schrödinger Energy Series", 1958 (2 copies)
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“Approach to Uniform Theory of the Liquid and Solid ...”, 1974

“Comment on Dispersion of Phonons in Liquid ^4He ”, 1970

“Beyond the BDJ Approximation...”, 1967

“Comment on Dispersion of Phonons in Liquid ^4He ” 1970

“Comments on Long-Wave Length Excitations...”, 1971

“Comments on the Theory of Quantum Fluids”, 1972

“Conventionality in Distant Simultaneity”, 1974

“Density Matrix of Liquid ^4He ...”, 1971 [published] (2 copies)

“Density Matrix of Liquid ^4He ...”, n. d. [draft]

“Deviations from LS Coupling...”, 1953

“Distant Synchrony and the One Wave Velocity of Light”, n.d.

“Distant Synchrony without Electromagnetic Signals...”, n.d.

“Electromagnetic Momentum in a Transparent Medium”, n.d.

“Elementary Treatment of Longitudinal ...”, 1946

“Energy Spectrum of Elementary Excitations ...”, 1962 (2 copies)

“Excitation Energy Difference in $\text{Li}^7\text{-Be}^7$ ”, 1951

“First-Forbidden Beta-Decay Matrix”, 1952

“Further Refinements on the Brillouin-Wigner Perturbation Procedure”, 1957 (2 copies)

“General Formulation of Quantum Theory”, n.d. [Draft]

“Ground State and Low Excited States of ...”, n.d. [draft]

“Ground State and Low Excited States of ...”, 1965 [published]

“Ground State of an Interacting Boson System”, n.d,

“Ground State of Many-Particle Systems...”, n.d. [Draft]

“The Ground State of Liquid He⁴”, 1962

“Ground State of Liquid Helium (Mass 4)” 1961 (2 copies)

“Group Theory and Its Application to Physical Problems”, n.d.
(x2 folders)

“Helium Liquids-Testing Ground...”, n.d.

“Heuristic Approach to a Uniform Theory of the Liquid...”, n.d.

“Interpretation of Comparative Half-Lives in...”, 1950 (2 copies)

“Interpretation of the K⁴² Radioactivity”, 1949 (2 copies)

“Invariance Property of Brillouin-Wigner Perturbation Series”, 1956
(2 copies)

“Low Excited States and Statistical...” 1968 (2 copies)

“Matrix Elements in Superaligned Transitions”, 1955

“Matrix Elements of a Fermion System...”, n.d.

“Matrix Elements of a Fermion System...”, 1965

“Microscopic Quantum Theory of the Helium Liquids”, 1970

“Necessary Conditions on Radial Distribution...”, 1967 (2 copies)

“Non-Orthogonality Corrections in the Method of Correlated...”, n.d.

“Normalization Parameters and Condensate Fraction...”, n.d. [Draft]

“Note on Rainwater’s Spheroidal Nuclear Model”, 1951

“Notes on Approximation Methods in Elementary Quantum...”, n.d.

“Notes on Perturbation Procedures in Quantum Theory”, n.d.

“Notes on Proposed Schemes for Nuclear Shell Models”, 1949

“Notes on the j-j Coupling Shell Model”, 1949

“Notes on the Radial Distribution Function...”, 1965

“Notes on the Theory of Quantum Fluids”, n.d. (x2 folders)

“Notes on Three Particle Distribution...”, 1967 (2 copies)

“Nuclear Shell Models”, 1950

“Nuclear Shell Structure”, 1954

“Nuclear Shell Structure and Isomerism”, 1949

“Observation on the Progress of Physics”, n.d.

“Ordering principles for cluster expansions in the theory of quantum fluids, dense gases, and simple classical liquids”, 1982 [co-authored with Deok Kyo Lee; published posthumously; includes correspondence from Deok Lee] (2 copies)

“Paired-Phonon Analysis for the Ground State...”, 1969 (2 copies)

“Perturbation Method for Low States...”, 1961 (2 copies)

“Perturbation Procedure for Bound States of Nuclei”, 1955 (2 copies)

“Phenomenological Theory of the Fermion System”, n.d.

“Pseudoscalar Interaction in the Theory of Beta-Decay”, 1952 (2 copies)

“Quantum Fluids”, 1974

“Radical Distribution Function and Equation of State...”, n.d.

“Recent Developments in the Theory of Nuclear Structure”, 1952

“Refinement of the Brillouin-Wigner Perturbation Method”, 1955

“Relation Between Nodal Positions and Standing Wave...”, 1946

“Relativistic Correction to Electric Multipole Transition”, n.d.

“Semi-Empirical Theory of Nuclear Energy Surface”, 1947

“Simplified Treatment for Strong Short-Range Repulsions”, 1959 (2)

- “Special Relativity”, 1967
- “Sum Rules, Dynamic Form Factor...”, n.d. [draft]
- “Sum Rules, Dynamic Form Factor...” 1970 [published] (2 copies)
- 01A “Superaligned Transitions in the $4n$ Series...”, n.d.
- “Superaligned Beta Transitions on the $N-2=3$ Series”, 1955 (2 copies)
- “Symmetry in the Fermi Theory of Beta-Delay”, 1951
- “Systematic Effects in Nuclear Structure...” n.d. [Drafts]
- “Theoretical Nuclear Physics”, 1956-57
- “Theory of a He^3 Atom in Liquid He^4 at $T=0$ ”, 1969 (2 copies)
- “Theory of Beam Coupling Coefficient...”, n.d.
- “Theory of Cascade Bunching”, n.d.
- “Theory of Fermion Liquid”, 1962 (2 copies)
- “Three Particle Distribution Functions”, n.d.
- “Three-Phonon Vertex in the Description of Ground State...”, 1969
- “Variance of H in the Bijl-Feynman”, 1968 (2 copies)
- “View of Nuclear Physics in the Thirties”, 1973
- Unidentified Drafts (Appendix _____)
- Unidentified Drafts (Appendix E)
- Unidentified Drafts (Chapter _____)
- Unidentified Drafts (Chapter I)
- Unidentified Drafts (Chapter II)
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Unidentified Drafts (Chapter X)

Series 03: Publications by Others (arranged alphabetically by author's last name)

Box No.	Folder
01A	Ahrens, R.M.C.H. "The Semi-Empirical Nuclear Energy Formula"
	Bäckman, S.-O. et al. "Numerical Comparison of Reaction-Matrix and Jastrow Methods for Nuclear Matter"
	Bender, Carl M. et al. "Gauge-Fixing Degeneracies and Confinement in Non-Abelian Gauge Theories"
	Block, B. "Fission and the Ion-Ion Interaction"
	Binns, et al. "Scintillator-Fiber charged-particle Track-Imaging Detector"
	Bolef, D.I. et al. "Elastic Properties of Vanadium. I. Temperature Dependence of the Elastic Constants and the Thermal Expansion"
	Bolef, D.I. "Interaction of Acoustic Waves with Nuclear Spins in Solids"
	Bolef, D.I. "Nuclear Spin-Phonon Interactions in Solids"
	Brandow, Baird H. "Compact-Cluster Expansion II: Finite Nuclei"
	Brandow, Baird H. "Linked-Cluster Expansion for the Nuclear Many-Body Problem"
	Brandow, Baird H. "Perturbation Theory of Liquid Helium-4 at Zero Temperature"
	Brandow, Baird H. "t-Matrix Perturbation Theory of Solid Helium"

Brueckner, Keith A. "The Quantum Mechanics of Many-Particle Systems" (2 folders)

Campbell, C.E. "Linked Cluster Expansions in the Density Fluctuation Formulation of the Many-Body Problem"

Chen, J.M.C. et al. "Methods for the Many-Body Problem"

Clark, J.W. et al. "Cluster Expansions in Many-Fermion Theory" Part I

Clark, J.W. et al. "Cluster Expansions in Many-Fermion Theory" Part II

Clark, J.W. et al. "Cluster Expansion Procedures for the Correlated Charge Form Factor"

Clark, J.W. et al. "Effect of Attractive Nuclear Forces on the Onset of Ferromagnetism in Neutron Star Matter"

Clark, J.W. "Effective Spin-Orbit Potential in Correlated Heavy Nuclei"

Clark, J.W. "Generalized Nuclear Matter"

Clark, J.W. "Magnetic Susceptibility of Neutron Matter"

Clark, J.W. et al. "The Method of Correlated Basis Functions"

Clark, J.W. et al. "Nuclear Forces, Compressibility of Neutron Matter and the Maximum Mass of Neutron Stars."

Clark, J.W. et al. "Observations on Λ Overbinding in Nuclear Matter"

Clark, J.W. et al. "On Short-Range Correlation Effects in One- and Two-Nucleon Ejection by Light Probe Particles"

Clark, J.W. et al. "Simple Derivation of Cluster Expansions..."

Clark, J.W. "Solid Neutron Stars = Fact or Fiction?"

Clark, J.W. et al. "Superfluid Ground State of Neutron Matter..."

Clark, J.W. et al. "Theory of α Matter"

Davison, Tollie B. et al. "Linear Correction to the Hypernetted-Chain Rule"

DeLlano, M. et al. "Quantum Fluid-Solid Transition in a Simple Variational Approach"

Eckstein, Shulamith et al. "Dispersion of Phonons in He⁴"

Eckstein, S. G. et al. "Effective He³ Quasiparticle Interaction in Superfluid He⁴"

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Ellis, Brian et al. "Comments on Conventionality in Distance Simultaneity"

Elasser, Walter M. "Quanta and the Concept of Organismic Law"

Elasser, Walter M. "Synopsis of Organismic Theory"

Elasser, Walter M. "Theory of Quantum-Mechanical Description"

Fedders, P. "Acoustic Magnetism Resonance in Metal via the Alpha-Rubin Mechanism"

Fedders, P. "Acoustic-Mode Dependence of Effective Dipolar-Induced Elastic and Magnetoelastic Constants..."

Fedders, P. "Acoustic Two-Magnon Processes in an Antiferromagnet"

Fedders, P. "Atomic diffusion in simple crystals..."

Fedders, P. "Comment on anomalous nuclear-acoustic resonance line shapes in Ta with mobile hydrogen impurities"

Fedders, P. et al "Correlation Functions for simple hopping in a face-centered-cubic lattice"

Fedders, P. et al "Correlation Functions for simple hopping in a simple cubic lattice"

Fedders, P. "Coupled Electronic Spins, Nuclear Spins, and Phonos"

Fedders, P. "Dynamic Effects in s-f Ferromagnetism"

Fedders, P. "Dynamic quadrupole nuclear spin relaxation..."

Fedders, P. "Dynamical four-spin two-time correlation functions in a high-temperature Heisenberg paramagnet"

Fedders, P. "Effects of self-consistency on spin-lattice relaxation"

Fedders, P. "The generalized atomic hopping problem – occupancy correlation functions"

Fedders, P. "Has Acoustic Ferrmagnetic Resonance in Metals been Observed?"

Fedders, P. "Higher-order approximation for dynamical spin correlation functions in high-temperature paramagnets"

Fedders, P. "Indirect Coupling of Photons to the Surface Plasmon"

Fedders, P. et al. "Itinerant Antiferromagnetism"

Fedders, P. "Microscopic View of Exchange Narrowing"

Fedders, P. et al "Moment expansions and occupancy (site) correlation functions for a one-dimensional hopping"

Fedders, P. "Nuclear-spin-lattice relaxation times for H₂..."

Fedders, P. "Optimal Conditions for Observation of Phonon Echoes..."

Fedders, P. et al. "Properties of Simple Alkali-Tetracyanoquinodimethan Salts"

Fedders, P. et al "Quadrupole exchange contributions to the ¹⁸¹Ta nuclear acoustic resonance line shapes..."

Fedders, P. "Resonant and nonresonant effects of paramagnetic spins on acoustic modes"

Fedders, P. "Simple atomic hopping among inequivalent octahedral sites"

Fedders, P. "Some quadrupolar effects on T₁ (H) for nuclear spins"

Fedders, P. "Some Surface Effects in an Electron Gas"

Fedders, P. "Spin-resonance line-shape changes induced by intraspin cross relaxation"

Fedders, P. "Spin Susceptibilities of Organic Systems..."

Fedders, P. et al. "Spin Susceptibility of Organic Free Radicals"

Fedders, P. "Statistic electric field gradients and associated magnetic-resonance line-shape changes..."

Fedders, P. "Surface Roughness and the Absorption of Electromagnetic Waves in Simple Metals"

Fedders, P. "Theory of Acoustic Paramagnetic Resonance in Dense Magnetic Insulators"

Fedders, P. "Theory of acoustic resonance and dispersion in bulk ferromagnets"

Fedders, P. "Theory of dynamic quadrupole spin relaxation..."

Fedders, P. "Theory of dynamic quadrupole spine relaxation – application to atomic vacancy hopping"

Fedders, P. et al. "Theory of electromagnetically induced acoustic phonon echoes"

Fedders, P. et al. "Theory of Ultrasonic Spin Echoes"

Fedders, P. "Time-dependent correlations between a pair of distinguishable particles..."

Fedders, P. "Two-point correlation functions for a distinguishable particle..."

Fernandez, J.I. "Observation of VH and VVH Cosmic Rays..."

Fetter, Alexander L. "Light-Scattering in Liquid Helium"

Gaudin, M. et al. "Fission: Assymetrié de Masse et Superconductivité"

Gaudin, M. et al. "Niveaux D'Énergie Dans Un Puits de Potentiel"

Goldhaber, M. et al. "Nuclear Isomerism and Shell Structure"

Goldhammer, Paul “Coupling of Nucleon Orbitals”

Goldhammer, Paul “Second-Order Effects of the Tensor Interactions”

Goldhammer, Paul “Theoretical Calculation of the Binding Energy of O^{16} ”

Inönü, E. et al. “Representations of the Galilei Group”

Israel, M. H. et al. “Abundance of Cosmic Ray Elements...”

Israel M. H. et al. “Construction and Performance of Large-Area Multiwire Ionization Hodoscope”

Israel, M. H. et al. “Cosmic-Ray Abundances of Individual Elements”

Israel, M. H. et al. “Flux of Cosmic Ray Electrons...”

Israel, M. H. et al “Interaction Mean-Free-Path of Cosmic Ray...”

Israel, M. H. et al. “Large-Area Pulse Ionization Chamber...”

Israel, M. H. et al. “The Propagation of Very Heavy Primary Cosmic Ray Particles”

Israel, M. H. et al. “Relativistic Heavy Cosmic Rays”

Israel, M. H. “Significance of Ultraheavy Cosmic Rays”

Jánossy, L. “A New Approach to the Theory of Relativity”

Jánossy, L. “A New Approach to the Theory of Relativity. II. The General Theory of Relativity”

Jaynes, E.T. “Information Theory and Statistical Mechanics”

Kang, Hichang “Microscopic Theory of Quantum Liquids”

Kilić, S. et al. “Application of the Brillouin-Wigner Perturbation Method in Many-Boson Theory”

Krotscheck, E. et al. “Grand-Canonical Formulation of Renormalized Cluster Expansions for the Nuclear-Matter Problem”

Krotscheck, E. et al. "A Numerical Study of Renormalized Jastrow Theory"

Lai, Hwa-Wen et al. "Dispersion of Phonons in Liquid He⁴"

Lai, Hwa-Wen et al. "Theory of Helium Submonolayers II. Bandwidths and Correlation Effects"

Lee, Deok Kyo "Energy Spectrum of Elementary Excitations in Liquid Helium"

Lee, Deok Kyo et al. "Equations for the Correlation Function in the Bijl-Dingle-Jastrow Description of Liquid⁴ He at Absolute Zero"

Lee, Deok Kyo "Ground-State Energy of a Many-Particle Boson System"

Lee, Deok Kyo et al. "Method of Correlated Basis Functions for the Ground State of an Electron Gas"

Lee, Deok Kyo "Three-Phonon Vertex Corrections to the Excitation Spectrum and Liquid-Structure Function of Liquid ⁴He"

Lee, Deok Kyo "Variational Principle and Many-Particle Boson Systems in the Uniform Limit"

Lu, E.Y.C. et al. "Exact Theory of Parametric Interactions and Spin Resonance with Counter-Rotating Terms"

Merry, J.B. et al. "On the coupling of Ultrasound to F¹⁹ Nuclear Spins..."

Miller, Allen et al. "Elementary Excitations in Liquid Helium"

Miller, Michael D. "Low-Temperature Specific Heats of Adsorbed Helium Monolayers in the Mobile Limit"

Miller, J.G. et al. "Acoustic Paramagnetic Resonance in a Dense Magnetic Insulator"

Mueller, G. et al. "The Problem of Lambda-Particle Binding in Nuclear Matter"

Myles, C.W. et al. "Dynamical two-point correlation functions in the high-temperature Heisenberg paramagnet"

Myles, C.W. et al. "Dynamics of a system of randomly distributed spins with multipolar interactions..."

Myles, C.W. et al. "Higher-Order Acoustic-Paramagnetic-Resonance Transitions of Magnetic Impurities..."

Opfer, James E. "Spin-Diffusion Coefficient of Dilute Solutions of He³ in Helium II"

Overhauser, A.W. "Spin-Density Waves in an Electron Gas" plus Feenberg's own notes

Pines, David et al. "Sum Rules, Structure Factors, and Phonon Dispersion in Liquid He⁴ at Long Wavelengths and Low Temperatures"

Primakoff, H. et al. "On the Angular Distribution of Two-Photon..."

Primakoff, H. "'Anomalous' $\pi - \mu$ Decay"

Primakoff, H. et al. "Atomic Excitation and Ionization..."

Primakoff, H. et al. "Baryon Number and Lepton Number..."

Primakoff, H. "Double Beta Decay"

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Primakoff, H. et al. "Muon Capture in Certain Light Nuclei"

Primakoff, H. et al. "'Nonmesonic' Bound V-Particle Decay"

Primakoff, H. et al. "The Polarization of Cosmic Ray Muons"

Primakoff, H. et al. "Relation between Apparent Shapes..."

Primakoff, H. et al. "On Statistical Estimation in Physics"

Primakoff, H. et al. "Theory of Solid He³"

Primakoff, H. et al. "The Transmission of Electrons..."

Primakoff, H. et al. "V Dinucleons"

Primakoff, H. "On γ -Induced β -Disintegration: Theoretical"

Ristig, M.L. et al. "The Iwamoto-Yamada Cluster Expansion: Its Structure and Renormalization"

Ristig, M.L. et al. "Pairing Energy of Liquid 'He'"

Ristig, M.L. et al. "Tensor Correlations in Nuclear Matter"

Sankey, O. F. et al. "The generalized atomic hopping problem – particle correlation functions"

Scharff-Goldhaber, G. et al. "The Variable Moment of Inertia (VMI_ Model and Theories of Nuclear Collective Motion"

Smith, Hedene, H., Jr. "Fourier Transform of the Morse- V_{DD} Potential"

Tan, H.T. et al. "Liquid Structure Function for Dilute He^3 - He^4 Solutions"

Tan, Hing-Tat et al. "Sum Rules for a Binary Solution and Effective Interactions Between 3He Quasiparticles in Superfluid 4He "

Ter Haar, D. "Statistical Mechanics of Stellar Systems"

Tyler, C. "A Pedogogical Measurement of the Velocity of Light"

Wang, Tso-Pin, et al. "Dynamical Correlations and the Nuclear Photoeffect"

Westhaus, P. et al. "A Binding to Nuclear Matter"

Wigner, Eugene P. "Causality, R-Matrix, and Collision Matrix"

Wigner, Eugene "Nuclear Physics"

Wigner, Eugene P. "On the Matrices Which Reduce the Kronegeer Products of Representations of S.R. Groups"

Wigner, Eugene "Relativistic Invariance and Quantum Phenomena"

Wigner, Eugene “Wigner’s Notes on Nuclear Structure and Beta Theory”

Woo, Chia-Wei et al. “Effect of Explicit Three-Particle Correlations on the Liquid Structure Function of Helium 4”

Woo, Chia-Wei “Microscopic Calculations for Condensed Phases of Helium”

Woo, Chia-Wei “New Variational Wave Function for Bose Liquids”

Woo, Chia-Wei “Theory of the (Normal) Ground State of Liquid Helium Three”

Wu, F.Y. “Ising Model with Four-Spin Interactions”

Wu, F.Y. “Modified Potassium Dihydrogen Phosphate Model in a Staggered Field”

Yang, C.-H. et al. “ Superfluid Condensation Energy of Neutron Matter”

Yuhas, M. et al. “Nonresonant ($\Delta m = 0$) Ultrasonic Coupling to Spin Quadrupole Modes in a Dilute Paramagnetic System”

Series 04: Research Notes (arranged alphabetically by subject)

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03 Alpha Decay

 Antenna Arrays

 Approximation Methods

 Arbitrary Motion Changes

 Beta Decay

 Beta Transitions

 Boson System Calculations

 Boson Type Eigen Function

 Bound Pair State

Bowen and Green Functions
Cauchy-Hoelder Inequality
Changed Boson Gas
Charged Particles (x2 folders)
Classical Mechanics
Cluster Expansion
Compton Effect
Double Closed Shell Systems
Electric and Magnetic Multipoles
Electromagnetic Charges
Electromagnetic Dipoles
Electrostatic Fields in Free Space
Energy and Mechanic Forces
Expectation Values
Fayetteville, 1973
Fourier Analysis of Fluctuations
Functional Equations
Functional Equation for $g(r)$, $s(k)$
Fluctuation Phenomena in a Temperature Limited Beam
Fundamental Units
General Relativity
Hamiltonian Motion and Principle
 He^3

04 He³ in He⁴
High Order Sum Rules
Hydrodynamics of Superfluids
I(xyzw) Expansion
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King's Theory and Beta Decay
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Landau Formalism
Lippman-Schwinger Extremum Principle
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Localized Magnetic Dipoles
Many Body Problem (x2 folders)
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Modified Hydrogenic Problem
N Boson Binding Energy
N Odd Integers
Nuclear Physics (x)
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Off-Diagonal Long-Range Order
Oscillatory Gaussian Cluster Integrals
Particle Problems
[Paustization]

Perturbation (x2 folders)
Phase Space Calculations
Phonon Analysis
Phonon Dispersion
Physical Foundations of Biology
Plane Wave in Good Conductors
Potentials Correlation Function
QT Transverse Radiation Field
Quantum Cell Models
Quantum Fluids (x2 folders)
05 Quantum Fluids (x2 folders)
Quantum Solids
 $(r/s/r^1) + (p/s/p^1)$
Rigid Body Motion
Rotation of Coordinates
 $S(k), S(k,w)$
Schmidt Orthogonalization
Schroedinger Equation
Sources of Radiation
Spin Wave Theory
Statistical Mechanics of BCS Solution
Statistical Physics
Sum Rules for Uniform System

Superconductivity
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 Surface Energy
 Thermodynamics
 Transition Probability
 Transport
 Unidentified (x8 folders)
 Unitary Transformation within the Θ_n Function
 Various Subjects of Research, 1962
 Wave Pockets

Series 05: Class Notes and Syllabi by Subject (arranged alphabetically by subject)

Box No.	Folder
06	Aspen, Colorado Course Atomic Physics Bessel Function Beta Transitions Collective Models [Diagonalizations] Eigen Values of 3+4 Particle Problems Latin American Summer School Magnetic Shielding and Microwaves Many Particle Problems

Matrix Elements
 Maxwell Velocity Distribution
 Mesons and Hyperons
 [Multysticities]
 Nuclear Physics
 Nuclear Shell Theory
 Nuclear Statistical Mechanics
 [Partilions]
 Statistical Methods
 Perturbation
 Quantum Fluids
 Quantum Mechanic Physics
 Stoney Brook Lecture
 Symmetric Group I & II
 Theoretical Nuclear Spectroscopy
 Vector Addition Coefficients
 Wigner's Operators

Series 06: Class Notes and Syllabi by Class (arranged by class number)

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 Physics 593
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Series 06A: Lecture Notes (arranged alphabetically by author)

Feenberg, E. "Nuclear Shell Structure"
 Feenberg, E. "Theoretical Nuclear Physics: Physics 544"
 Primakoff, H. "Radiation and Collision Processes"
 Primakoff, H. "Quantum Mechanics: corrected notes"

Series 07: Research Proposals and Reports (arranged alphabetically by subject)

Box No.	Folder
06	"Bunching Theory for Two Resonator Klystron Multipliers", 1944
	"Measurement of Dielectric Properties of an Impedance...", 1943
	"Notes on Frequency Dependence of Impedance...", 1943
	"Notes on Infinite Rejection Circuits", 1943
	"Resistance Attenuators and Terminations", 1943
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Amos, A.T.

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Yale University

X,Y,Z