

Record Series Number



11/06/030
Engineering
Electrical Engineering
Nelson Wax Papers, 1933-1988

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Box 1:

BIOGRAPHICAL

Card File: Addresses and Notes
Appointment Papers, 1947-1987
Personal
Biographies, Vitae, Employment Fact Sheet
Professional Services Agreement - Space Technology Laboratories, 1959
Children's Book - Nursery Rhymes
Graduation and Guggenheim Programs
Travel Journal - Russia, 1969
Travel Journal - Japan, 1970
Photographs
Ph.D. Thesis - Diagrams, 1942
Ph.D. Thesis and Abstract
Thesis: Visual Discrimination for Various Separations of the Objects Viewed

CORRESPONDENCE

Chronological Correspondence File, 1946-1988 (10 folders) (Note: contains correspondence related to topics in subject file, including their submission for publication)
University Patent Committee, 1954-1955
University Patent Committee, 1956-1960
Patent #2, 466, 922, 1949-1952
Japanese Patent Application (David Wax), 1976-1980
Referee's Reports, Journal of Applied Physics, 1950-1955
Referee's Reports, Institute of Radio Engineers, 1961-1962
Referee's Reports, 1963-1965
Penfield (Penfield's Paradox), 1966-1968
Peter Ponzo, 1963-1973 (2 folders)

Box 2:

Peter Ponzo, 1974-1984
Personal Letters of Alan Sutherland and His Thesis: The Problem of Space Charge in Flow Parallel Plane Triodes under Large-Signal Conditions at Ultra-High Frequencies, 1953
Nomination for Membership in the Society of Sigma Xi, 1952-1953
Concerning CS 319, 1978-1979
Computer Service Facilities at EE, reports of Subcommittee, 1963
Professorial Data and Activities form, 1985

Departmental Correspondence and Report, 1980-1981
Two Papers: Dynamics of Phase Locked Loops and Composition of Control Systems,
1975-1986
Kouan Fong, 1963
Annuity Contract, 1987
CV-S, Minutes Concerning the Search Committee for Director of CSL, 1972-1973 (2
folders)
Rand Corporation, 1958-1969
A.D. Sutherland Correspondence, 1954
Control System Laboratory, 1948-1951
Letter to Science Magazine, 1975-1976
Max Mintz, 1973-1974
Dover Publications (Hayward Cirker), 1948-1980 (6 folders)
Swedish Correspondence, 1953-1958
Harry W. Gatzke, 1973-1975
Harry Gatzke's Thesis
M.S. Epelman, 1972-1976
Sabbatical Application, 1977
Rutman-Soviet Jews, Background Information, 1972
Lady Davis Fellowship Application, 1976-1977
Fellowship Applications, 1953-1956
Weizmann Institute of Science (Israel), 1977-1979
Kyoto International Conference on Circuit and System Theory (Program), 1970
IEEE International Symposium on Circuits and Systems (Tokyo), 1979
ADMINISTRATIVE AND STUDENT THESIS FILES
Nelson Wax's Sabbatical Reports, 1954-1987
Title Pages of Supervised Theses and Dissertations, 1956-1981
Reports and Reply on the CS Proposal, 1969
M. Zakai's Thesis Title Page and Notes, 1957
UI Digital Computer, Internal Reports, 1952-1953
Graduate Advisory Exam Electrical Engineering, 1957
Certificate of Attendance at Maxwell Air Force Base, Alabama and Photo; Brochure on
National Security Forum, 1953
Statement and Proposal on General Education Curriculum in Electrical Engineering, 1958
Graduate Committee Agendas, 1957-1958
Leo Koch Case, 1960
The Case of Professor Koch and the Open Letters, 1960
SRI Meeting, Report, 1960
Report of ACCRA Mathematics Conference and Letter from Stephen White, 1961
Subcommittee on Applied Mathematics

Box 3:

Report of the Graduate Committee of the Department of Electrical Engineering, 1955-56,
1962-63
 Appointment Correspondence for F. T. Wall, 1963
 Memorandum from Dale Compton on Systems Engineering Courses, 1964
 Progress Report on Joint Services Electronics Program, 1972
 Memo from C. B. Duke on PLATO Costs, 1972
 Lecture Notes on Linear Systems (Coppell), 1972
 Report of the Applied Mathematics Committee, 1972
 Onsala Space Laboratory (Sweden), 1976
 Revision of Adviser's Manual, 1976
 Electrical Engineering Graduate Study Manual, 1976-77
 Report on Graduate Thesis Research, 1979
 Course Review: Physics/Philosophy 319, 1979
 Graduate Committee–Ad Hoc Subcommittee on Graduate Thesis Research, 1979
 Undergraduate Student Handbook, 1985
 Engineering Program Evaluation Form

SUBJECT FILE

African Education Study – Reports, Calculations, Correspondence, 1961
 African Education Study – Reports and Presentations, 1961
 African Education Study – Final Reports, 1961
 Report on a Trip to Bell Laboratories, 1957
 Note on a Model of a Biochemical Reaction, 1977
 Biochemical Oscillator (Note on a Model of a Biochemical Reaction), 1977
 Relaxation Oscillations of a Model Biochemical Reaction
 Birth and Death Processes (Handwritten Calculations)
 Broom Balances
 Continuum Models for Large-Scale Systems (NSF Research Proposal), 1977
 On the Control of Certain Interacting Populations, 1974-77 (4 folders)
 The Dynamics of Two Interacting Populations, 1973-74
 Interacting Populations (Notes and Calculations)
 Decomposition and Control, 1985
 A Note on Design Conditions for a Proposed Auroral Radar
 Differential Analysis – Problem, Misc. Graphs
 Dunham – The Theory of the Schottky Effect
 Advanced Electron and Ion Dynamics, Lecture Notes, 1948-49
 Electron and Ion Dynamics (2nd Semester), Lecture Notes, 1949
 Electron and Ion Dynamics II, Lecture Notes, 1949

Box 4:

Notes on Electromagnetic Waves (Notebook – Bell Telephone Labs)
 Error Correcting Codes

- Handwritten Notes
- Error Correcting Codes – Calculations, Graphs, Printouts, Notes, 1960-62
- Error Correcting Codes and Error Detecting Codes with Applications to Digital Computation
- Error Correcting Codes
- Coding (Notes)
- On Upper Bounds for Error Detecting and Error Correcting Codes of Finite Lengths
- Fourier Integrals, 1980
- A Note on Frequency Entrainment, 1967
- Functional Reproducibility
- Gronwall's Inequality
- Hopf Bifurcation Theorem
- Hysteresis
 - Nonlinear Systems with Hysteresis, 1962-1970
 - Nonlinear Systems with Hysteresis, 1969-1970
 - Hysteresis, 1974
 - Nonlinear Circuits with Hysteresis
 - Handwritten Manuscripts on Hysteresis
- ILLIAC I – Preliminary Research Report, 1949
- Information Theory: Lecture by Joseph Doob, Notes by Robert Baer
- An Invariant Matrix and the Integration of Certain Products, 1971
- Krylov-Bogolin
- Large Scale Systems, 1974
- Continuum Models for Certain Large Scale Systems (IFAC Symposium on Large-Scale Systems), 1975
- Liénard Equation
 - On Some Periodic Solutions of the Liénard Equation, 1966
 - On the Periodic Solutions of Certain Liénard Equations
 - Periodic Solutions of Generalized Liénard Equations, 1982-83
 - Stability, Singular Perturbations, and the Vector Liénard Equation, 1972
 - Stability and the Vector Liénard Equation, 1969-1970
 - Periodic Solutions of Liénard Equations, 1985
- Linearization of Beam Balances by Two Methods
- Linear Input-Output Systems
 - Reproducibility of Linear Input-Output Systems
 - Path Controllability of Linear Input-Output Systems
- Malthus – Predictions of Man's Future
- Some Properties and Algorithms for Manually Strongly Connected Subgraphs, 1977
- Some Properties of, and Algorithms for, Manually Strongly Connected Subgraphs, 1977
- Interim Report on Millimeter Wave Research, 1950
- Multivibrator Theory (2 folders)
- Multivibrator Theory – Notes, Drafts, Correspondence, 1969-1975 (2 folders)

Noise

Preliminary Report on the Recognition of Certain Signals Embedded in Noise,
1952
Noise and Miscellaneous Calculations, 1952
Noise Tracks
Noise Tracks – Assorted Calculations
Computer Results on Tracks
Extraction of Signals from Noise

Box 5:

Nonlinear Dynamics Manuscript

The Controllability of Certain Nonlinear Planar Systems (Felix Albrecht and Wax), 1976-
77

Notebook, Bell Telephone Labs

Notebook, Bell Telephone Labs, Contains Bibliography

Numerical Integration of Certain Products and Convolutions, 1968-69

One-Dimensional Electron Flow

Time Optimal Control of Certain Planar Systems (Wax and Felix Albrecht), 1975

Oscillators and Oscillations

A Family of Exact Invariants for the Time-Dependent Harmonic Oscillator
(Drafts and Notes)

Longitudinal Plasma Oscillations in the Presence of an External Electric Field

On Bounds for Certain Relaxation Oscillations

Nonlinear Coupled Oscillators, 1963

On Certain Relaxation Oscillations: Confining Regions, 1964-65

Non-Linear Systems: Frequency Entrainment, Oscillator Locking, and Oscillator
Coupling (Research Proposal), 1966-1967

Report R-228: On Certain Relaxation Oscillations: Confining Regions, 1964

Report R-229: On Certain Relaxation Oscillations: Asymptotic Solutions, 1964

Weakly Coupled Harmonic Oscillators, 1971-1972

Relaxation Oscillations and Singular Perturbations, 1972

Relaxation Oscillations, Parasitics, and Singular Perturbations, 1972

A Family of Exact Invariants for the Time-Dependent Harmonic Oscillator, 1975

Almost Discontinuous Oscillations: Multivibrator, 1975

Almost Discontinuous Oscillations: The Generalized Multivibrator, 1977

Oscillations: Correspondence (Peter Ponzo and Wax), 1982

A Note on Frequency Entrainment/Non-Linear Systems: Frequency Entrainment,
Oscillator Locking, and Oscillator Coupling

Path Controllability of Linear Input-Output Systems

A Study of Phase-Locked Loops, 1959

A Note on Stable, Physically Realizable, Linear, Time Invariant Systems, 1967

The Dynamics of Phase-Locked Loops

Probability (Joseph Doob)
 Probability Distributions for Correlation Detection Processes (USAF Project RAND),
 1959
 Idella Pindell: Application of the Theory of Integral Equations to Fourier Series (thesis),
 1940
 Peter Ponzo: Reprints, Correspondence, and Papers
 Peter Ponzo: Handouts from Modeling Course, 1977
 Radiation and Radiating Systems

Box 6:

On Repeated Approximate Product Integration
 On the Representation and Simulation Certain Random Functions of Time (USAF Project
 RAND), 1958
 Ring Current Calculations
 A Second-Order Differential Equation with Singular Solutions
 Simple Feedback Systems with Chaotic Behavior
 Singular Perturbations, 1970
 A Spate of Paradoxes, 1968
 A Note on Stable, Physically Realizable, Linear, Time Invariant Systems (Report for the
 RAND Corporation, Memorandum RM-3333-PR), 1962
 On a Phase Method for Treating Sturm-Liouville Equations and P problems, 1959
 System Structure, 1973-75
 System Structure: Stability and Controllability, 1985
 System Structure and Stability
 Stability Theory (Notes and Article)
 The T Wavelength (short story)
 Theory and Organization of Complicated Automata (Lecture Outline)
 Time Varying Systems
 Transmission of Data from Ordvac to a Set of Controlled Targets, 1952
 The Transmission Problem from the Point of View of Linear Least Square Filtering (Wax
 and Zakai), 1958
 Van der Pol Equation, 1965
 Von Forrester, Heinz, 1970
 Wave Motion Transmission Line Theory
 Weitzmann Institute – Calculations
 On Periodic Solutions of the System $x = y - F(x)$, $y = -g(x)$
 Notes on the Equation $y - m \sin y + y = 0$ and Some Variants
 Existence and Stability of Periodic Solutions of $y = mF(y) + y = 0$
 HANDWRITTEN NOTES, CALCULATIONS, AND GRAPHS
 Handwritten Mathematical Calculations (Begins with p. 13)
 Handwritten Calculations (Some on Hurwitz Theorem)
 Handwritten Notes on Linear Graphs (115 p.)

Handwritten Calculations, Titled Jeano, Chapters II – XVI
 Handwritten Notes (Untitled) on System Structure and Stability
 Notes, Starting with p. 60
 Calculations, Equations, Graphs, and Printouts
 Handwritten Pages of Calculations, Outline for Electric Field Analogy
 Handwritten Calculations
 Handwritten Notes
 Research Notes
 Miscellaneous Calculations, Proposal for Continuation of Research, Contract AF19
 (122)-5
 Graphs, 1944
 Handwritten Notes and Calculations (Original Title: Colloquium Notes), 1945
 Designs and Calculations (Notes), 1948
 Laboratory Notes, 1948-1950
 Control Systems Lab – Tracking Experiments (Notes), 1952
 Series of Lectures on Physics of Ionized Gases, 1955
 Handwritten Notes, 1956
 Handwritten Mathematical Calculations, 1957-1959
 Calculations, 1959
 Miscellaneous Calculations, 1959
 Calculations for Professor Wax, 1959
 Handwritten Calculations, 1961
 Handwritten Calculations, 1962
 Article by Shimon Even with Handwritten Calculations, 1962
 Handwritten Calculations, 1962-1963
 MSC Subgraphs – Notes, Paper by Franz Hohn, 1975-76
 Weight Graphs, 1978
 Handwritten Calculations, Letter from Elton Katz, 1978

Box 7:

COURSE NOTES, LECTURE NOTES, AND EXAM QUESTIONS

Lecture Notes for Quantum Mechanics, 1945-46
 Course 123: Ion Dynamics
 Lecture Notes for EE198W, 1948
 Lecture Notes for EE198W, 1948
 Course 131: Microwave Circuits, 1948
 Class Notes and Exams for EE 260, 1975
 Exams for EE260, 1984-85
 EE260 Schedule and Exams, 1986
 Exam for EE299, 1964
 Class Notes and Exam Papers for EE350, 1965-1977
 Notes for EE350

Student Evaluations for EE350, 1976
Exams and Class Notes for EE350, 1977
Exams for EE355F, 1957
Notes for EE355
Exams for EE355F, 1967
Exams for EE375R
Notes and Exams for EE/CS414 (Graph Theory)
Notes for EE414 (Linear Graphs)
Class Notes and Homework for EE415 (Control Theory), 1970
Notes and Exams for EE416 (Linear Systems Analysis), 1960
Notes and Exams for EE416, 1964
Notes for EE416, 1976
Notes for EE416
Notes for EE416 (Linear Systems and Circuits), 1966-1973
Evaluation Forms for EE416, 1973
Evaluation Forms for EE416, 1976
Notes and Exams for EE416, 1981-1987
Notes for EE422 and EE433, 1950, 1957
Class Notes for EE423 (Electron and Ion Dynamics), 1948-49
Exams for EE423, 1949-1950
Lectures and Exams for EE423 (Electrons and Ion Dynamics), 1953
Notes for EE423, 1956
Notes for EE423
Notes for EE428

Box 8:

Notes for EE/TAM428, 1973
Notes for EE/TAM428, 1983-86
Notes and Exams for EE/TAM428
Evaluations for EE/TAM428, 1984
Class Notes and Exams for EE350, EE416, and EE/TAM428, 1969-1985
Exam Papers for EE350, EE428, and EE416, 1974-1976
Class Notes and Exams for EE350, EE416, EE/TAM428
Exams and Notes for EE433, 1960
Notes for EE433
Exams for EE433, 1961
Exams for EE433, 1963
EE433
Notes for EE434, 1971
Notes for EE434
Class Notes for EE434, 1971
Notes for EE498W, 1958-59

Notes for EE646-2
Math 385, 1953
Math 385
Math 701-2
Notes for Math 703
Notes for Math 801 (Theory of Functions of a Complex Variable)
Notes for Math 813-4
Notes for Math 814
Lecture Notes, Math 969 (1-15), 1975
Lecture Notes, Math 969 (16-30), 1975
Lecture Notes, Math 969, 1975
Papers for Math 701, 702, 703, 814; Physics 805, 817, 818
Dreese's Notes and U.H.F. Notes (EE821 and EE751)
Physics 860 (Ohio State), 1939
Exam Questions (Notecards)

Box 9:

PUBLICATIONS

Selected Papers on Noise and Stochastic Processes, ed. Nelson Wax, 1954
On a Phase Method for Treating Sturm-Liouville Equations and Problems, June 1961
On a Periodic Solution of the van der Pol Equation, March 1965
Reprints of Wax's Articles, 1946-1991 (3 folders)