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Engineering

Shee Mang Yen Papers, 1965-1992

Box 1:

Biographical information

Resume, 1969

News clippings, 1971

Final Report, 1976, 1978-80

Photographs of Yen performing experiments (c 1970s?)

Biography of S.M. Yen

Correspondence

Shock wave study, 1965-67

Monte Carlo studies, 1965-67

Satellite Experiences; NASA letter, 1966

NASA and request for extension; contract, 1966-68

Office of Naval Research (ONR), 1966-68

Copy permission of papers, 1967

Boltzmann Equation, 1967-68

Spinning gyro experiment; notes, 1967-68

Satellite Experiment: grant proposal, 1967-68

Letter from Dean, 1968

Bruce Hicks, 1968, 1970

Reports, 1968

Robert Collins; notes, 1968-70

Takashi Sugimura, 1968

Students, 1969

Flow fields, 1969

E.Y. Yu, 1969

Don Baganoff, 1969-71, 1974

ONR: distribution of publications and reports, 1969-70

Letter to J.O. Ballance, 1969

ONR, 1969-70

National Oceanic and Atmospheric Administration (NOAA), 1971-72

Francis Harlow, 1969, 1973

Undergraduate curriculum, 1970

ONR: report, publications, and distribution, 1970

International Symposium on Rarefied Gas Dynamics, 1970

George Springer, 1970-71

“Clean Air Car Race Information. Sheet”, 1970-71

Gino Moretti, 1970-71

Morton Cooper and Numerical Solutions of Three-Dimensional Gas Dynamic Problems

Proposed for Research, 1970-72, 1974

Tse-Sun Chow, 1970

Watanabe Seminar, 1970

Barbara Reilly, Ivan Reilly; notes, 1970-71
 J.P. Elliott, 1970-72
 Elden Whipple, 1970-72
 V.P. Shidlovsky, 1971
 Eizi Ohdan; graduate appointment and transcript, 1971
 James Brock, 1971
 Sin-I Cheng, 1971
 Allen Chen, 1972
 Bruce Hanke; course notes, 1972
 W.W. Wood, 1972
 Ninth International Symposium on Rarefied Gas Dynamics; "Further Developments of a Monte Carlo Method for Evaluation of Boltzmann Collision Integrals" by S.M Yen et al. , 1974
 T. Y. Wu, 1974
 National Science Foundation; budget and proposals, 1974-76
 Tor Ytrehus, 1975-77, 1979
 Von Karmen Institute, 1975, 1977
 John F. Wendt, 1975-77
 NASA lecture, 1976
 ONR contract, 1982
 Francis Noblesse, 1983

Progress reports

Engineering experiments, 1965-67, 1971
 Hicks QPR drafts, 1960-66
 Work on rarefied gas, 1967-68
 Orbiting gyro experiment, 1968-70
 ONR report on implicit finite methods, 1971-73
 Rarefied gas dynamics, 1979
 Numerical solution of non-linear free surface wave problems, 1980, 1982-83
 Subsonic, viscous, 1981
 Numerical solutions, 1981
 Numerical studies of non-linear free surface problems, 1982-84

Reprints and reports

"Gas Dynamic Investigation of a Valveless Pulse Jet Tube," 1951
 "Kinetic Theory Approach to Study of Flow Fields," 1962
 Pseudo Shock paper, 1966
 "On the Accuracy of Approximate Solutions to the Boltzmann Equation," 1966
 "Numerical Studies of the Non-Linear Boltzmann Equation Part II: Studies of New Techniques of Error Reduction," 1969
 "Monte Carlo Solutions of Non-Linear Boltzmann Equations for Problems of Heat Transfer in Rarefied Gas," 1970
 "The Internal Structure of Shock Waves," 1970
 "Rarefied Gas Dynamics Research," 1971
 "Shock Wave Structure in a Binary Gas Mixture," 1972

“Implementation of Finite Difference Schemes of Solving Fluid Dynamic Problems on Illiac IV,” 1973

“A Brief Proposal: Solutions of the Navier-Stokes Equation for Compressible Flow at Large Reynolds Numbers,” 1973

Final report of Monte Carlo Computation of a Gas Dynamic Process, 1976-77

“Observations on the Benefits of My Recent Visit to the Soviet Union,” 1977

“Review of Boltzmann Studies”; “On Topics of Discussions,” 1977

Monte Carlo paper presented to American Institute of Aeronautics and Astronautics, 1980

“Numerical Solutions of the Non-equilibrium Vapor Motion Near an Evaporating Interphase Boundary,” 1979-80

Notes to “Boundary Layer Similar Solutions Formulation and Methods of Solution,” 1988

Notes and overheads for Electric Propulsion Group, 1992

Reprints and reports not dated

Emission-Absorption Problem (transparencies)

AIAA Meeting Transcript

“The Differencing Scheme”

“A Numerical Method of the Solution of the Boltzmann Equation for a Plasma Diode Problem”

“Transient Viscous Flow Around an Elliptic Cylinder – A Numerical Experiment”

“Collision Integrated for Rarefied Gas Flow Problems”

“Further Developments of Nordsieck’s Method for Evaluation of Boltzmann Collision Integral” ; “Solutions of Kinetic Equations for Non-Equilibrium Gas Flow Between Emitting and Absorbency Surfaces”

“A Six-Moment Shock Wave”

“Implementation of Nonreflective Open Boundary Condition for Nonlinear Free Surface Wave Problems”

“Solutions of the Boltzmann and Krook Equations for Heat Transfer Problems with Maxwell and Evaporative Boundary Conditions” ; “Aerodynamic Properties of Spinning Convex Bodies in a Free Molecule Flow”

Box 2:

“Collision Integrals for Rarefied Gas Flow Problems”

“Kinetics of Non-Equilibrium Gas Flow Between Emitting and Absorbing Surfaces”

“Non-linear Numerical Solutions for an Evaporation Effusion Problem”

Shock wave paper manuscript

“Thermally Non-equilibrium Hypersonic Shock Layer Near the Stagnation Point”

“Numerical Solutions of the Boltzmann and Krook Equations for a Condensation Problem”

“Numerical Solution of the Boltzmann Equations for Non-Equilibrium Flow Problems”;

“Implementation of Finite Difference Schemes of Solving Fluid Dynamic Problems on Illiac IV”

“Implementation of Open Boundary Conditions for Non-linear Free Surface Wave

Problems”

“Application of Finite Element Method to Potential Flow Problems”

“A Preliminary Research Proposal Application of Finite Elements Method to Numerical Solution of Convective Heat Transfer Problems”

Research proposals

Satellite experiment outlines for proposal, 1967

Gas dynamics, 1969-70

Monte Carlo Method for solving the non-linear Boltzmann Equation, 1969-71

Numerical method for solving the Boltzmann Equation for plasma problems, 1971

Institutional Energy, 1979-80

Numerical Studies of non-linear free surface problems, 1982-84

Research proposals and reports with specific institutions

Coordinated Science Laboratory (CSL)

Coordinated Science Laboratory, 1970

Announcements, 1966-68

Contracts and grants, 1967

Long-Range Plans, 1969-80

Memos, 1970

Cooperative Research Program

Monte Carlo solutions and rarefied gas dynamics), 1985

Department of Defense research and grant proposals

Orbital Density, Drag Coefficient, Gas-Molecule Surface Interaction Experiment and Satellite Experiment, 1966

Engineering Experiment Station (University of Illinois) contract

Final report: Interactions Between Multiple Objects in a Hypervelocity Flow Regime,”1983

NASA research and grant proposals

Analyzing satellite data, 1969

Orbiting gyro experiment, 1969

Contract extension, 1969-70

National Oceanic and Atmospheric Administration (NOAA) research proposal

Boltzmann Equation, 1973-74

Correspondence, 1971-72

National Science Foundation (NSF) grant proposals

Shock wave experiments, 1972

Renewal grant, 1977-78

NATO research and grant proposals

Gas Kinetics in the Case of Strong Evaporation, 1975-77

Office of Naval Research (ONR) research proposals and contracts

Contracts On Boltzmann Equation and research on kinetic theory and rarefied gas dynamics, 1965-66, 1971

Contract on Boltzmann Equation and report of work paid consultants, 1966-67

Numerical Integration of Navier-Stokes Equations for Three-Dimensional Flow on a Larger Parallel-Operation Computer, 1968, 1970

Rarefied Gas Dynamics, 1968-69
1969-70
Rarefied Gas Dynamics Group Project Extension, 1968-70
1968
Numerical Solutions of Three-Dimensional Gas Dynamic Problems, 1970-72
Numerical fluid dynamics, 1973-75
1974
Travel budget, 1981
Correspondence relating to travel to Paris, 1981
Numerical studies of non-linear free surface problems, 1982-84
End-of-fiscal-year letter, 1983

Textron grant and proposal
Contract, 1991

Course material

Notes for AAE 418, 1971
Notes for AAE 414, 1979
Notes and transparencies for AAE 414, 1989
Notes and transparencies for AAE 418, 1989
Notes and transparencies for AAE 413, 1990
Notes and transparencies for AAE 493 H, 1992

Conferences, seminars, and symposia

Seminar presented on Boltzmann Equation at North American Rockwell Corporation,
1968
Ninth International Symposium on Rarefied Gas Dynamics, 1974
Eleventh International Symposium on Rarefied Gas Dynamics; correspondence and
papers, 1977-79
Third International Conference on Numerical Strip and Hydrodynamics; correspondence,
1980-81
USSR travel
Travel plans and trip notes, 1975-76
Report, 1975-76
Invitation correspondence, 1975
1976
Lecture given at USSR Academy of Sciences
Sixth International Conference on Numerical Methods in Fluid Dynamics
in Tbilisi; papers and correspondence relating to conference, 1978
Travel expenses to Moscow and Tbilisi, 1978

