



Gerald H. Thomas

Adjunct Professor, Electrical Engineering and Computer Science

Degree with Fields, Institution, and Date

- Doctor of Philosophy, Physics, University of CA: Los Angeles, 1969
- MS, Physics, University of CA: Los Angeles, 1966
- BS, Physics, California Institute of Technology, 1964

Years of Service at MSOE: 19

Date of Original Appointment: September 2005

Advancement in Rank/Position

- Adjunct Professor, June 2017
- Adjunct Associate Professor, September 2005

Other Teaching Experience

- Argonne National Labs, 1971-1981
- University of Helsinki, 1970-1971
- Academic Experience, CERN, 1969-1970

Industrial Experience

- President Emeritus, Chicago Maritime Museum, 2017 – Present
- President, Chicago Maritime Museum, 2005 - 2017
- President, Strategy Consultants, Hinsdale, Illinois, 2003-present

- Lucent Technologies, Naperville, Illinois - Senior Program Director, 1999-2002
- Phoenix Wireless Group, Maitland, Florida - Vice President Products, 1998-1999
- Engineering Operations Manager, Motorola, Arlington Heights, Illinois, 1994-1998
- Senior Resource Manager, Motorola, Arlington Heights, Illinois, 1992-1995
- AT&T Bell Laboratories, Naperville, Illinois – Manager, 1981-1992

Consulting and Patents

- G.H. Thomas et al., "Processing Sequence Calls in a Distributed Control System, #4, 686-701. 1987. AT&T Bell Labs.

Publications

- G. H. Thomas, (2023), A Field Theory of Games: Introduction to Decision Engineering, Volume 2, (Wolfram Media, Inc.).
- G. H. Thomas, (2021), A Field Theory of Games: Introduction to Decision Engineering, Volume 1, (Wolfram Media, Inc.).
- G. H. Thomas, “Modified Navier-Stokes and Decision Process Theory”, invited talk at the Wolfram Conference 2020, October 18-21, 2020.
- G. H. Thomas, “The New Decision Process Toolkit”, invited talk at the Wolfram Technology Conference 2019, October 28-31, 2019.
- G. H. Thomas, “Computational Approach to Game Theory”, invited talk at the Wolfram Technology Conference 2017, October 17-20, 2017.
- G. H. Thomas, (2016), Geometry, Language and Strategy—The Dynamics of Decision Processes, Vol. 2, (World Scientific Publishing, Singapore).
- G. H. Thomas, *Experiences teaching computational engineering with applications to advanced decision processes*, invited talk at the Wolfram Technology Conference 2016, October 18-21, 2016.
- G. H. Thomas, *Discussion on engineering, physics, computer science*, invited discussion leader at the Wolfram Mathematica Conference at Carthage University, August 17, 2016.
- G. H. Thomas, *Transients and Resonances in Game Theory and General Relativity*, invited talk at the Wolfram Technology Conference 2015, October 20-22, 2015.

- G. H. Thomas, *Visualizing Behaviors in Differential Geometry*, invited talk at University of Illinois, 2015.
- G. H. Thomas, *Systems Dynamics*, invited lecture at Northwestern University, 2015.
- G. H. Thomas, *Visualizing behaviors in differential geometries using Mathematica*, invited talk at the Wolfram Technology Conference 2014, October 22-24, 2014.
- G. H. Thomas, *Decision making, chaos and determinism*, invited talk at the Wolfram Technology Conference 2013, October 21-23, 2013.
- G. H. Thomas, *Decision Process Theory*, invited talk at the Wolfram Technology Conference 2012, October 17-19, 2012.
- G. H. Thomas, *The Dynamics of Decision Processes*, invited talk at the Wolfram Technology Conference 2011, October 19-21, 2011.
- G. H. Thomas, *The Dynamics of Decision Processes*, <http://decisionprocesstheory.com/white-papers/the-dynamics-of-decision-processes/>. 2012.
- G. H. Thomas and K. Kane (2010), A dynamic theory of strategic decision making applied to the prisoner's dilemma, In A. A. Minai, D. Braha, & B.-Y. Yaneer (Ed.), *Unifying themes in complex systems: Vol VI, Proceedings of the Sixth International Conference on Complex Systems* (pp. 275-28?). Springer Verlag.
- Sabelli, H. and Thomas, G.H., "The Future Quantum Computer: Biotic Complexity," chapter X in *Reflexing Interfaces: the complex coevolution of information technology*, eds, Orsucci, F. & Sala, N., (Information Science Reference, New York, 2008).
- G. H. Thomas and K. Kane (2008), Physical decision theory, the prisoner's dilemma and a new foundation for Nash equilibrium, unpublished, 2009.
- G. H. Thomas, (2006), *Geometry, Language, and Strategy*, (World Scientific Publishing, Singapore).
- D. Bjornson, D. Frailey, J. Horan, and G. H. Thomas, "An Industry Perspective on Computer Science Accreditation", joint panel CSC 94 and SIGCSE 94 at "Computer Science Week" sponsored by ACM" (1994).

- G. H. Thomas, telecommunication presentations between 1993-2002 to customers including AT&T, Bell South, US West, Verizon, WorldCom, Level3, Point One, Telefonica Brazil, AT&T Latin America, Concert, British Telecom, China Unicom, Korea Telecom, and SingTel.
- G. H. Thomas et al., "Remote Switching Module", AT&T Bell Laboratories Record (c1985).
- G. H. Thomas, "Introductory Lectures on Fibre Bundles and Topology for Physicists", *Rivista del Nuovo Cimento* 3, 1 (1980).
- G. H. Thomas (editor), "High Energy Physics with Polarized Beams", American Institute of Physics Conference Proceedings 51, Particles and Fields Subseries 17, (1979).
- P. A. Schreiner, G. H. Thomas, and A. B. Wicklund (editors), "Particles and Fields-1977 (APS/DPF, Argonne)", American Institute of Physics Conference Proceedings 43, Particles and Fields Subseries 13, (1978).
- E. L. Berger, R. Singer, G. H. Thomas, and T. Kafka, "Invariant-mass dependence of two-pion inclusive correlation functions", *Phys. Rev. D* 15, 206 (1977).
- P. W. Johnson, R. C. Miller, and G. H. Thomas, "Amplitude reconstruction in scattering at 6 GeV/c; where do we stand and what measurements should be done?" *Phys. Rev. D* 15, 1895 (1977).
- G. H. Thomas, "Inclusive coherent interference phenomena between pions in an S-matrix model", *Phys. Rev. D* 15, 2636 (1977).
- P. W. Johnson and G. H. Thomas, "Disentangling the scattering matrix when there is a dominant reaction mechanism", *Phys. Rev. D* 16, 2783 (1977).
- R. C. Arnold and G. H. Thomas, "Role of collective phenomena in high-energy multiple production", *Phys. Rev. D* 13, 2013 (1976).
- G. L. Kane and G. H. Thomas, "Importance of the inelastic threshold for understanding low-energy amplitudes", *Phys. Rev. D* 13, 2944 (1976).
- P. Pirila and G. H. Thomas, "Rapidity gap correlations in short range order models", *Nuclear Physics B* 86, 526 (1975).
- P. Pirila and G. H. Thomas, "Proposal of a new measure of clustering for high-multiplicity events at asymptotic energies", *Phys. Rev. D* 11, 2532 (1975).

- R. C. Arnold and G. H. Thomas, "Joint rapidity and multiplicity dependences of correlation functions in high-energy collisions" *Phys. Rev. D* 9, 3121 (1974).
- D. Sivers and G. H. Thomas, "Models for left-right multiplicities", *Phys. Rev. D* 9, 208 (1974).
- D. Sivers and G. H. Thomas, "Right-left multiplicities and the Pommeranchuk singularity", *Phys. Rev. D* 9, 319 (1974).
- S. S. Pinsky and G. H. Thomas, "Can Mueller-Regge models describe inclusive data consistently?" *Phys. Rev. D* 9, 1350 (1974).
- G. H. Thomas, "Compatibility of Hydrodynamic Equations with the General Multiperipheral Picture", *Phys. Rev. Letters* 32, 1210 (1974).
- G. H. Thomas and B. R. Webber, "Inclusive correlations between photons and charged pions", *Phys. Rev. D* 9, 3113 (1974).
- S. S. Pinsky, D. R. Snider, and G. H. Thomas, "Inclusion of resonances in the multiperipheral model", *Phys. Rev. D* 10, 261 (1974).
- F. Halzen and G. H. Thomas, "Exchange mechanism of proton-proton scattering and the trend of polarized-beam cross sections at intermediate energies", *Phys. Rev. D* 10, 344 (1974).
- S. S. Pinsky and G. H. Thomas, "Equivalent exclusive and inclusive multiperipheral description", *Phys. Rev. D* 10, 2237 (1974).
- D. Sivers and G. H. Thomas, "Multiplicity Moments, Cluster Functions, and the Asymptotic Behavior of the Cross Section", *Phys. Rev. D* 7, 516 (1973).
- G. H. Thomas, "Remarks on the 200-GeV/c Data and the Independent-Emission Model", *Phys. Rev. D* 7, 2058 (1973).
- E. L. Berger, D. Horn, and G. H. Thomas, "Correlation between Neutral and Charged Pions in Multiparticle Production", *Phys. Rev. D* 7, 1412 (1973).
- C. Quigg and G. H. Thomas, "Charge Transfer in a Multiperipheral Picture", *Phys. Rev. D* 7, 2752 (1973).
- R. C. Arnold and G. H. Thomas, "Evidence for Critical Point Effects in High Energy Particle Multiplicities", *Physics Letters* 47B, 371 (1973).

- G. H. Thomas, "Charged- and Neutral-Particle Correlations at the Critical Point", Phys. Rev. D8, 3042 (1973).
- R. C. Arnold, S. Fenster, and G. H. Thomas, "Multiplicity, Gas Analog, Phase Transitions, and the Dual Resonance Model", Phys. Rev. D8, 3138 (1973).
- S. S. Pinsky, D. R. Snider, and G. H. Thomas, "Equivalency between the Mueller Regge Model and the Multiperipheral Model", Physics Letters 47B, 505 (1973).
- S. Pokorski, R. O. Raitio, and G. H. Thomas, "Duality and Final-State Interactions in the Description of at Rest", Il Nuovo Cimento 7A, 828 (1972).
- H. Satz and G. H. Thomas, "A Multiresonance Model for High-Energy Hadron Production", 9A, 433 (1972).
- Ph. Salin and G. H. Thomas, "Towards an understanding of the shapes of inclusive spectra", Nuclear Physics B38, 375 (1972).
- G. H. Thomas, "Survey of Inclusive Distributions in a Dual-Resonance Model", Phys. Rev. D5, 2212 (1972).
- E. L. Berger, Ph. Salin, and G. H. Thomas, "Baryon Exchange and Shapes of Inclusive Spectra", Physics Letters 39B, 265 (1972).
- G. R. Charlton and G. H. Thomas, "Remarks on Average Pion Multiplicities at High Energy", Physics Letters 40B, 378 (1972).
- D. Sivers and G. H. Thomas, "Analysis of Inclusive Distributions using a Statistical Approach", Phys. Rev. D6, 1961 (1972).
- Chan H-M, R. O. Raitio, G. H. Thomas and N. A. Tornqvist, "A Crossing Symmetric Description of Data with the Generalized Veneziano Model", Nuclear Physics B19, 173 (1970).
- B. Petersson and G. H. Thomas, "A Simultaneous Description of Two- and Three-body data with the Generalized Veneziano Model", Nuclear Physics B20, (1970).
- G. H. Thomas, "Nucleon-Nucleon Scattering Experiments in the Relativistic Region and Possible Tests of the Long Range Pion Exchange", Ph. D. Dissertation at UCLA (1969).
- N. Byers and G. H. Thomas, "photoproduction of ρ , ω , and near $t=0$ ", Phys. Rev. Letters 20, 120 (1968).

- N. Byers and G. H. Thomas, "p charge exchange as a polarization analyzer or source of high energy polarized beams", Phys. Letters 25B, 233 (1967).

Publication - Web

- G. H. Thomas, The Dynamics of Decision Processes, preliminary web version, 2011.

Scientific and Professional Societies of Which a Member

- IEEE-Computer Science Life Senior Member
- ACM
- American Physical Society
- MAA
- Computing Accreditation Commission Program Evaluator 2012 - 2014
- Computing Accreditation Commission Team Chair 2014 - Present
- Member of IEEE Committee on Accreditation Activities (CEAA)
- ABET Engineering Accreditation Commission Program Evaluator for Computer Engineering and Electrical Engineering 1999-Present
- Past CSAB Board Member
- CSAC team chair, editor, and visitor

Institutional and Professional Service

- Team Chair and member of the commission CAC, ABET for Computer Science, 2014-2018
- Program Evaluator for ABET Engineering Accreditation Commission for Computer Engineering and Electrical Engineering, 1999-2018

Professional Development and Activities

- Scientist - Investigated topics in theoretical physics at Argonne National Laboratory as Physicist, at the University of Helsinki Finland as Physics Research Associate and at CERN, Geneva, Switzerland as NATO Postdoctoral Fellow in physics.

- Fluent in French