

Curriculum Vitae
January 2007

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BIRTHDATE: October 14, 1950

PRESENT POSITION:

2000- Director
Center for Astrophysics at
Notre Dame University (CANDU)

1994- Professor of Physics
University of Notre Dame
Department of Physics
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PRIOR EXPERIENCE:

1993-1994 Senior Scientist
Physical Sciences Directorate
Physics Program/P-Division
University of California
Lawrence Livermore National Laboratory

and

Adjunct Professor of Physics and Astronomy: University of California, Davis

1986-1993 Group Leader for Astrophysics
Physics Department/E-Division
University of California
Lawrence Livermore National Laboratory

- 1981–86 Physicist
Lawrence Livermore National Laboratory
University of California
Research in Nuclear Astrophysics, Nuclear Structure,
Nuclear Reactions, and Particle Physics
- 1979–81 W. K. Kellogg Radiation Laboratory
California Institute of Technology
Senior Research Fellow
Research in Nuclear Astrophysics
- 1977–79 Lawrence Berkeley Laboratory
University of California
Research Associate
Research in Heavy-Ion Nuclear Collisions and Nuclear Astrophysics
- 1977 University of Maryland,
Post-Doctoral Research Associate
Research in Nuclear Astrophysics, Nuclear Structure, and Heavy-Ion Collisions

EDUCATION:

Ph.D–1977, University of Maryland, College Park, MD
Dissertation–Reflections and Research on:

- I) The Nucleosynthesis of Light and Heavy Nuclei
- II) A Generalized Theory of Odd–A Nuclei
- III) A Study of Three Heavy-Ion Systems.

B.S.–Chemical Physics, 1972, Michigan State University

HONORS: Research Excellence Award of the Society of the Sigma Xi (1976)

Association of Western Universities-ERDA-Fellowship to Lawrence Berkeley
Laboratory (1976)

Visiting Scientist: California Institute of Technology (1981)

Guest Scientist: Max Planck Institute for Astrophysics (1984)

Distinguished Visiting Professor: University of Chicago (1990)

Outstanding Scientific Publication Award, Physics Research Program,
Lawrence Livermore National Laboratory (1993)

Visiting Professor, National Astronomical Observatory of Japan/ Tokyo
University (1994, 2000, 2001, 2005)

Fellow: American Physical Society (1994)

Center of Excellence Distinguished Lecturer, Tokyo University (2005)

PROFESSIONAL AFFILIATION:

American Physical Society: Astrophysics Division, Division of Nuclear Physics

American Astronomical Society

PROFESSIONAL SERVICE IN 2005-2007

National: Scientific Organizing Committee - Second Oak Ridge Symposium on Atomic and Nuclear Astrophysics

DOE – Proposal Reviewer: Nuclear Astrophysics

NSF – Review Panel: Theoretical Astrophysics

Journal Referee: Physical Review Letters

Physical Review C, D

Astrophysical Journal

Astronomy & Astrophysics

Nuclear Physics A

Departmental: Colloquium Committee (2000-2006)

Strategic Planning Committee (2005-2006)

Astrophysics Seminar (2005-2006)

Admissions Committee (2006-2007)

Current Graduate Students: M. Dolan – 3rd year
S. Luke – 3rd year
X. Zhao – 3rd year

Recent Ph.D. Recipients: J. Haywood (2006)
D. Menzies-Gow (2006)
T. Ashenfelter (2005)
C. Fragile (2001)
P. Marronetti (1999)

Publications in Refereed Journals

1. “ $\alpha + \alpha$ Reaction and the Origin of ${}^7\text{Li}$,” C.H. King, H.H. Rossner, S.M. Austin, W.S. Chien, G.J. Mathews, V.E. Viola, Jr., and R.G. Clark, *Phys. Rev. Lett.* 35, 988 (1975).
2. “Population of Levels in ${}^{199}\text{Hg}$ following ${}^{199}\text{Tl}$ Decay and Intermediate Coupling Calculations for ${}^{199}\text{Hg}$,” G.J. Mathews, F.M. Bernthal, and J.D. Immele, *Phys. Rev.* C11, 387 (1975).
3. “Gamma-Gamma Angular Correlations in Rh following the Decay of $4.4\text{-h } {}^{105}\text{Ru}$,” E.W. Schneider, G.J. Mathews, S.V. Jackson, P.W. Gallagher, and W.B. Walters, *Phys. Rev.* C13, 1624 (1976).
4. “r-Process Nucleosynthesis of Superheavy Nuclei and Nuclear Mass Tables,” G.J. Mathews and V.E. Viola, Jr., *Nature* 261, 382 (1976).
5. “Li, Be, and Production in Reactions of 45–100 MeV Protons with ${}^{12}\text{C}$: Astrophysical Implications,” C.T. Roche, R.G. Clark, G.J. Mathews, and V.E. Viola, Jr., *Phys. Rev.* C14, 410 (1976).
6. “Evidence for the Characterization of Heavy-Ion Reactions by the Ratio E/B,” G.J. Mathews, G.J. Wozniak, R.P. Schmitt, and L.G. Moretto, *Z. Physik A* 283, 247 (1977).
7. “Production of $A = 6$ and $A = 7$ Isotopes in the $\alpha + \alpha$ Reaction,” B.G. Glacola, G.J. Mathews, H.F. Breuer, V.E. Viola, Jr., P.G. Roos, A. Nadasen, and S.M. Austin, *Phys. Rev. Lett.* 41, 1698 (1978).
8. “Measurement of ${}^4\text{He} + {}^4\text{He}$ Elastic Scattering at 158.2 MeV,” A. Nadasen, P.G. Roos, B.G. Glagola, G.J. Mathews, and V.E. Viola, *Phys. Rev.* C18, 2792 (1978).
9. “Nucleosynthesis of Li, Be and B: Contributions from the $\text{P} + {}^{160}$ Reaction at 50–90 MeV,” R.A. Moyle, B.G. Glacola, G.J. Mathews, and V.E. Viola, Jr., *Phys. Rev.* C19, 631 (1979).
10. “On the Light Element Abundances, Galactic Evolution, and the Universal Baryon Density,” G.J. Mathews and V.E. Viola, Jr., *Ap. J.* 228, 375 (1979).
11. “A Scenario for the 220–MeV ${}^{40}\text{Ar} + {}^{238}\text{U}$ Reaction,” G.J. Mathews, L.G. Sobotka, G.J. Wozniak, R. Regimbart, R.P. Schmitt, G.U. Rattazzi, and L.G. Moretto, *Z. Physik A* 290, 407 (1979).
12. “A Theoretical Investigation of Shell Effects in Deep Inelastic Collisions,” L.G. Sobotka, G.J. Mathews, and L.G. Moretto, *Z. Physik A* 292, 191 (1979).
13. “On the Decay Width of the Complete-Fusion System,” G.J. Mathews and L.G. Moretto, *Phys. Lett.* 87B, 331 (1979).

14. "Fragment Spin Orientation in Deep-Inelastic Reactions from Anisotropy Measurements of Continuum Gamma Rays," P. Auger, R.P. Schmitt, G.J. Wozniak, D. Habs, R.M. Diamond, C. Ellegaard, D.L. Hillis, C.C. Hsu, G.J. Mathews, L.G. Moretto, G.U. Rattazzi, C.P. Roulet, and F.S. Stephens, *Phys. Rev. Lett.* **43**, 1778 (1979).
15. "Distortions in the Cosmic Background Radiation and Big Bang ^4He Nucleosynthesis," G.J. Mathews, Y. Alhassid, and G. Fuller, *Ap. J.* **246**, 361 (1981).
16. "Systematics of r-Process Enrichment Factors for Barium, Neodymium, and Samarium Isotopic Anomalies in the Allende Meteorite," G.J. Mathews and W.A. Fowler, *Ap. J.* **251**, L45 (1981).
17. "Fast Particle Emission in the Deep Inelastic Reaction $^{107,109}\text{Cu} + ^{20}\text{Ne}$ at 12.1 MeV/Nucleon," R.P. Schmitt, G.J. Wozniak, G.U. Rattazzi, G.J. Mathews, R. Regimbart, and L.G. Moretto, *Phys. Rev. Lett.* **46**, 522 (1981).
18. " ^{20}Ne -Induced Reactions with Cu and ^{197}Au at 8.6 and 12.6 MeV/Nucleon," G.J. Mathews, J.B. Moulton, G.J. Wozniak, B. Cauvin, R.P. Schmitt, J.S. Sventek, and L.G. Moretto, *Phys. Rev.* **C25**, 300 (1982).
19. "Production of ^6He , ^6Li , ^7Li , and ^7Be in the $\alpha + \alpha$ Reaction Between 60–160 MeV," B.G. Glagola, V.E. Viola, Jr., H. Breuer, N.S. Chant, A. Nadasen, P.G. Roos, S.M. Austin, and G.J. Mathews, *Phys. Rev.* **C25**, 34 (1982).
20. "Low Energy $^3\text{He}(\alpha, \gamma)^7\text{Be}$ Cross Section Measurements," J.L. Osborne, C.A. Barnes, R.W. Kavanagh, R.M. Kremer, G.J. Mathews, J.L. Zyskind, P.D. Parker, and A.J. Howard, *Phys. Rev. Lett.* **48**, 1664 (1982).
21. "Inclusion of Deuteron and Alpha-Particle Collisions in Intranuclear Cascade Calculations," G.J. Mathews, R. Moyle, B. Glagola, and V.E. Viola, *Phys. Rev.* **C25**, 2181 (1982).
22. "Energy Deposition in Intermediate Energy Nucleon-Nucleus Collisions," K. Kwiatkowski, S.H. Zhou, T.E. Ward, V.E. Viola, H. Breuer, G.J. Mathews, A. Gokmen, and A. Mignerey, *Phys. Rev. Lett.* **50**, 1648 (1983).
23. "Neutron Capture Rates in the r-Process: The Role of Direct Radiative Capture," G.J. Mathews, A. Mengoni, F.K. Thielemann, and W.A. Fowler, *Ap. J.* **270**, 740 (1983).
24. "A Comparison Between Observed and Theoretical H-R Diagrams for the Young LMC Star Cluster NGC1866," S.A. Becker and G.J. Mathews, *Ap. J.* **270**, 155 (1983).
25. "A New System for Astrophysical Nuclear Reaction Studies with Radioactive Ion Beams," R.C. Haight, G.J. Mathews, R.M. White, L.A. Aviles, and S.E. Woodard, *Nucl. Instrum. Methods* **206**, 245 (1983).
26. "On the Branching Ratio in the Decay of ^7Be ," G.J. Mathews, R.C. Haight, R.G. Lanier and R.M. White, *Phys. Rev.* **C28**, 879 (1983).

27. "The Gamow-Teller Strength Function for ^{90}Zr : The Effects of Spin and Isospin Exchange Forces, and Ground-State Correlations," G.J. Mathews, S.D. Bloom and R.F. Hausman, Jr., *Phys. Rev. C* 28, 1367 (1983).
28. "A Study of Charge, Energy, and Angular Momentum Transfer in the $^{56}\text{Fe} + ^{197}\text{Au}$ and $^{56}\text{Fe} + ^{107,109}\text{Ag}$ Reactions at 7.2 and 8.3 MeV/Nucleon," G.J. Wozniak, G.J. Mathews, R.P. Schmitt, R. Regimbart, H. Hubel, R.M. Diamond, and L.G. Moretto, *Nucl. Phys. A* 402, 322 (1983).
29. "Low Energy Behavior of the $^3\text{He}(\alpha,\gamma)^7\text{Be}$ Cross Section," J.L. Osborne, C.A. Barnes, R.W. Kavanagh, R.M. Kremer, G.J. Mathews, J.L. Zyskind, P.D. Parker, and A.J. Howard, *Nucl. Phys. A* 419, 115 (1984).
30. "The $^{13}\text{N}(p,\gamma)^{14}\text{O}$ Thermonuclear Reaction Rate and the Hot CNO Cycle," G.J. Mathews, and F.S. Dietrich, *Ap. J.* 287, 969 (1984). (UCRL-90349)
31. "Neutron Capture Nucleosynthesis of Neodymium Isotopes and the s-Process from $A = 130$ to 150 ," G.J. Mathews and F. Kappeler, *Ap. J.* 286, 810 (1984). (UCRL-90525)
32. "Intranuclear Cascade and Fermi-Breakup Calculations of ^1H and ^4He - Induced Reactions on Light Target Nuclei," A. Gokmen, G.J. Mathews, and V.E. Viola, Jr., *Phys. Rev. C* 29, 1606 (1984).
33. "Neutron Capture Processes in Astrophysics," G.J. Mathews and R.A. Ward, *Rep. Prog. in Phys.* 48, 1371 (1985). (UCRL-91445)
34. "Radioactive Ion Beams—Hot Stellar Reactions in the Laboratory," R.C. Haight, G.J. Mathews, and R.W. Bauer, *Nucl. Inst. Meth.*, B10/11, 361 (1985). (UCRL-91600)
35. "A Shell Model Study of the $^{71}\text{Ga}(\nu,e^-)^{71}\text{Ga}$ Solar Neutrino Detector," G.J. Mathews, S.D. Bloom, G.M. Fuller, and J.N. Bahcall, *Phys. Rev. C* 32, 796 (1985). (UCRL-90317 Rev. 1)
36. "Stellar Neutron Capture Rates for $^{46,48}\text{Ca}$," G. Walter, F. Kappeler, and G.J. Mathews, *Astrophys. J.* 291, 319 (1985).
37. "Astrophysical Production Rates for Li, Be, and B nuclei from Energetic Reactions of He, C, N, and O Nuclei with H and He," T.P. Walker, V.E. Viola, and G.J. Mathews, *Astrophys. J.* 299, 74 (1985).
38. "Stellar Technetium and Niobium Abundances as a Measure of the Lifetime of AGB Stars in the Third Dredge-up Phase," G.J. Mathews, K. Takahashi, R.A. Ward, and W.M. Howard, *Astrophys. J.* 302, 410 (1986). (UCRL-92671)
39. "Shell-Model Calculation of ^{99}Tc Beta Decay in Astrophysical Environments," K. Takahashi, G.J. Mathews, and S.D. Bloom, *Phys. Rev. C* 33, 296 (1986). (UCRL-93165)

40. "A Parametric Study of Pulsed Neutron-Source Models for the s-Process," W.M. Howard, G.J. Mathews, K. Takahashi, and R.A. Ward, *Astrophys. J.* 309, 633 (1986). (UCRL-94131)
41. "Primordial Nucleosynthesis in Inhomogeneous Cosmologies: $\Omega = 1$ with Baryons," K.E. Sale and G.J. Mathews, *Astrophys. J.* 309, L1 (1986). (UCRL-94679)
42. "Binding Energies of Q-Nuclei and Stellar Hydrogen Burning," C.A. Hughes, S.D. Bloom, and G.J. Mathews, *Astrophys. J.* 311, 485 (1986). (UCRL-93791)
43. "The Quark-Hadron Phase Transition and Primordial Nucleosynthesis," C.R. Alcock, G.M. Fuller, and G.J. Mathews, *Astrophys. J.* 320, 439 (1987). (UCRL-95896)
44. "Thorium/Neodymium Cosmochronology and Galactic Chemical Evolution," G.J. Mathews and D.N. Schramm, *Astrophys. J. Lett.* 324, L67 (1987). UCRL-97178.
45. "SU(2) Lattice Gauge Theory and the Convergence of the t-Expansion," G.J. Mathews, N.J. Snyderman, and S.D. Bloom, *Phys. Rev.* D36, 2553 (1987). (UCRL-96007)
46. "Bound-State Beta Decay of Highly Ionized Atoms," K. Takahashi, R.N. Boyd, G.J. Mathews, and K. Yokoi, *Phys. Rev.* C36, 1522 (1987).
47. "Gamow-Teller Strength Function for $^{90}\text{Zr}(n,p)^{90}\text{Y}$," S.D. Bloom, G.J. Mathews, and J.A. Becker, *Can. J. Phys.* 65, 684 (1987). (UCRL-95857)
48. "Radioactive Ion Beam Research at Lawrence Livermore National Laboratory," K.E. Sale, R.W. Bauer, R.N. Boyd, G.J. Mathews, R.C. Haight, and P.B. Corn, *Nucl. Instr. Meth.* B24/25, 490 (1987). (UCRL-95451)
49. "The Quark Hadron Phase Transition in the Early Universe: Isothermal Baryon Number Fluctuations and Primordial Nucleosynthesis," G.M. Fuller, G.J. Mathews, and C.R. Alcock, *Phys. Rev.* D37, 1380 (1988). (UCRL-97316)
50. "Beta-Delayed Fission and Neutron Emission Calculations for the Actinide Cosmochronometers," B.S. Meyer, W.M. Howard, G.J. Mathews, K. Takahashi, P. Moller, and G.A. Leander, *Phys. Rev. C* 39, 1876 (1989). (UCRL-96754)
51. "Cosmological Consequences of the Quark-Hadron Phase Transition," C.R. Alcock, G.M. Fuller, G.J. Mathews, and B. Meyer, *Nucl. Phys.* 301, A498 (1989). (UCRL-100039)
52. "Stellar Photonuclear Reactions and the Actinide Cosmochronometers," R.A. Malaney, G.J. Mathews, and D.S.P. Dearborn, *Astrophys. J.* 345, 169 (1989). (UCRL-100440)
53. "Branching Ratios for $^3\text{He}(\alpha,\gamma)^7\text{Be}$ and $^3\text{H}(\alpha,\gamma)^7\text{Li}$," T. Kajino, G.J. Mathews and K. Ikeda, *Phys. Rev.* C40, 525 (1989). (UCRL-98534)

54. "Radioactive Ion Beams of Cosmological Interest," K.E. Sale, R.N. Boyd, G.J. Mathews, P.B. Corn, and M.S. Islam, Nucl. Inst. & Meth. B40, 501 (1989). (UCRL-98965)
55. "A Convenient Technique to Make Uniform Polyethylene Foils," M.S. Islam, P.B. Corn, R.N. Boyd, K.E. Sale, and G.J. Mathews, Nucl. Inst. Meth. A276, 647 (1989).
56. "Measurement of the Half Life of ^8Li ," K.E. Sale, T.F. Wang, R.N. Boyd, and G.J. Mathews, Phys. Rev. C41, 2418 (1990).
57. "Galactic Chemical Evolution with Low and High Primordial Lithium," G.J. Mathews, C.R. Alcock, and G.M. Fuller, Astrophys. J. 349, 449 (1990). (UCRL-100444)
58. "New Insights into the Astrophysical r-Process," G.J. Mathews and J.J. Cowan, Nature 345, 491 (1990). (UCRL-101746)
59. "Metallicity Dependent Stellar Ages and the G-Dwarf Problem," G. Bazan and G.J. Mathews, Astrophys. J. 354, 644 (1990). (UCRL-101970)
60. "Late Time Dissipation of Primordial Baryon Number Fluctuations and Nucleosynthesis," C.R. Alcock, D.S. Dearborn, G.M. Fuller, G.J. Mathews, and B.S. Meyer, Phys. Rev. Lett. 64, 2607 (1990). (UCRL-102191)
61. "Primordial Nucleosynthesis of Intermediate-Mass Elements in Baryon-Number Inhomogeneous Big Bang Models: Observational Tests," T. Kajino, G.J. Mathews, and G.M. Fuller, Astrophys. J. 364, 7 (1990). (UCRL-102770)
62. "Coupled Baryon Diffusions and Primordial Nucleosynthesis," G.J. Mathews, B. Meyer, C.R. Alcock, and G.M. Fuller, Astrophys. J. 358, 36. (UCRL-102320)
63. "Deviation from Periodicity in the Large-Scale Distribution of Galaxies," H. Kurki-Suonio, G.J. Mathews, and G.M. Fuller, Astrophys. J. Lett. 356, L5 (1990). (UCRL-102772)
64. "Heavy-Element Nucleosynthesis," G.J. Mathews, Jap. J. Nucl. Res., (Genshikaku Kenkyu) 135, 61 (1990). (UCRL-JC-105121)
65. "Evolution of Baryon Number Density during the Cosmic Quark-Hadron Phase Transition," K. Sumiyoshi, T. Kajino, C.R. Alcock, and G.J. Mathews, Phys. Rev. D42, 3963 (1990).
66. "Inhomogeneous Halo Collapse and Early Galactic Chemical Evolution: Globular Cluster Metallicities," G. Malinie, D.H. Hartmann, and G.J. Mathews, Astrophys. J. 376, 520 (1991). (UCRL-JC-106175)
67. "Neutron Capture Cross Sections of ^{86}Sr and ^{87}Sr from 100 eV to 1 MeV, the Conditions for the Astrophysical s-Process and the ^{87}Rb - ^{87}Sr Cosmochronometer," R.W. Bauer, G. Bazan, J.A. Becker, R.E. Howe, and G.J. Mathews, Phys. Rev. C4, 2004 (1991). (UCRL-JC-104891)

68. "Spectrum of QCD Nucleation Site Separations and Primordial Nucleosynthesis," B.S. Meyer, C.R. Alcock, G.J. Mathews, and G.M. Fuller, *Phys. Rev. D* 43, 1079 (1991). (UCRL-JC-104313)
69. "Prospects for Observing Preinflation Fluctuations in the Cosmic Microwave Background," H. Kurki-Suonio, F. Graziani, and G.J. Mathews, *Phys. Rev. D* 44, 3072 (1991).
70. "Finding the Proton Drip Line," G.J. Mathews, *Nature* 351, 348 (1991). (UCRL-JC-107330)
71. "Evolution of Heavy Element Abundances as a constraint on Sites for Neutron Capture Nucleosynthesis," G.J. Mathews, G. Bazan, and J.J. Cowan, *Astrophys. J* 391, 719 (1992). (UCRL-JC-107096-Rev 1)
72. "r-Process Nucleosynthesis in the High-Entropy Supernova Neutrino Bubble," B.S. Meyer, G.J. Mathews, W.M. Howard, S.E. Woosley, and R.D. Hoffman, *Astrophys. J.* 399 (1992). (UCRL-JC-109960)
73. "Diffusion Coefficients and Inhomogeneous Big-Bang Nucleosynthesis," H. Kurki-Suonio, M.B. Aufderheide, F. Graziani, G.J. Mathews, B. Banerjee, S.M. Chitre, and D.N. Schramm, *Phys. Lett.* B289, 211 (1992). (UCRL-JC-109596)
74. "Skyrmion Recoil in Pion-Nucleon Scattering," J.L. Hughes and G.J. Mathews, *Phys. Rev. D* 46, 970 (1992). (UCRL-JC-109962)
75. "Measurement of the Half-Life of ^{20}F ," T.F. Wang, R.N. Boyd, G.J. Mathews, M.L. Roberts, and K.E. Sale, *Nucl. Phys.* A536, 159 (1992).
76. "Shell Model Calculations of Gamow-Teller Strength in ^{51}V , ^{54}Fe , and ^{59}Co ," M.B. Aufderheide, S.D. Bloom, D.A. Resler, and G.J. Mathews, *Phys. Rev.* C48, 1677 (1993). (UCRL-JC-114439)
77. "Chemical Evolution of Irregular Galaxies and the Primordial Helium Abundances," G.J. Mathews, R.N. Boyd, and G.M. Fuller, *Astrophys. J.* 403, 65 (1993). (UCRL-JC-109560)
78. "Limits to the Primordial Helium Abundance in the Baryon Inhomogeneous Big Bang," G.J. Mathews, D.N. Schramm, and B.S. Meyer, *Astrophys. J.* 404, 65 (1993). (UCRL-JC-109961)
79. "Heavy Element Nucleosynthesis and Galactic Chemical Evolution," G.J. Mathews, G. Bazan, J.J. Cowan, and D.N. Schramm, *Physics Reports* 227, 197 (1993). (UCRL-JC-109995)
80. "Gamma-Ray Constraints on the Galactic Supernova Rate," D. Hartmann, L.-S. The, D.D. Clayton, M. Leising, G.J. Mathews, and S.E. Woosley, *Astron. & Astrophys.* 97, 219 (1993).

81. "Protogalactic Mergers and Cosmochronology," G.J. Mathews and D.N. Schramm, *Astrophys. J.* 404, 468 (1993). (UCRL-JC-110453)
82. "Implications of the Recent $^{59}\text{Co}(n,p)^{59}\text{Fe}$ Experiment for Stellar Electron Capture Rates," M.B. Aufderheide, S.D. Bloom, D.A. Resler, and G.J. Mathews, *Phys. Rev.* C47, 2961 (1993). (UCRL-JC-110800)
83. "Inhomogeneous Chemical Evolution of the Galactic Disk," G. Malinie, D.H. Hartmann, D.D. Clayton, and G.J. Mathews, *Astrophys. J.* 413, 633 (1993). (UCRL-JC-112649)
84. "Supernova Nucleosynthesis Constraints on Cosmologically Significant Neutrino Masses and Mixing Angles," Y.-Z. Qian, G.M. Fuller, G.J. Mathews, and J.R. Wilson, *Phys. Rev. Lett.* 71, 1965 (1993). (UCRL-JC-112659)
85. "Probing the Early Universe: A Review of Primordial Nucleosynthesis Beyond the Standard Model," R.A. Malaney and G.J. Mathews, *Phys Rep.* 229, 145 (1993). (UCRL-JC-113445)
86. "The Primordial Helium Abundance as Determined from Chemical Evolution of Irregular Galaxies," M.J. Balbes, R.N. Boyd, and G.J. Mathews, *Astrophys. J.* 418, 229 (1993). (UCRL-JC-112633)
87. "The QCD Phase Transition and Supernova Collapse," N. Gentile, M.B. Aufderheide, G.J. Mathews, F.D. Swesty, and G.M. Fuller, *Astrophys. J.* 414, 701 (1993). (UCRL-JC-113171)
88. "Nuclear Shell Model Calculations of Neutralino-Nucleus Cross Sections for ^{29}Si and ^{73}Ge ," M.T. Ressel, M.B. Aufderheide, S.D. Bloom, K. Greist, G. . Mathews, and D.A. Resler, *Phys. Rev.* D48, 5519 (1993). (UCRL-JC-114085)
89. "Cross Sections for $A=6-30$ Fragments from $^4\text{He} + ^{28}\text{Si}$ Reaction at 117 and 198 MeV," L.W. Woo, K. Kwiatkowski, W.G. Wilson, V.E. Viola, H. Breuer, and G.J. Mathews, *Phys. Rev.* C47, 267 (1993).
90. "Enhanced Heavy-Element Formation in Baryon-Inhomogeneous Big-Bang Models," K. Jedamzik, G.M. Fuller, G.J. Mathews, and T. Kajino, *Astrophys. J.* 422, 423 (1994). (UCRL-JC-114076)
91. "Inhomogeneous Primordial Nucleosynthesis: Coupled Nuclear Reactions and Hydrodynamic Dissipation Processes," K. Jedamzik, G.M. Fuller, and G.J. Mathews, *Astrophys. J.* 423, 50 (1994). (UCRL-JC-114448)
92. "Production of Li, Be, & B from Baryon Inhomogeneous Primordial Nucleosynthesis," D. Thomas, D.N. Schramm, K.A. Olive, G.J. Mathews, B.S. Meyer, and B.D. Fields, *Astrophys. J.* 430, 291 (1994), UCRL-JC-115109/ FERMILAB Pub 93/261-A.

93. "On Constraining Electroweak Baryogenesis with Primordial Nucleosynthesis," G.M. Fuller, K. Jedamzik, and G.J. Mathews, *Phys. Lett.* **B333**, 135 (1994).
94. "The r-process and Neutrino-Heated Supernova Ejecta," S.E. Woosley, J.R. Wilson, G.J. Mathews, R.D. Hoffman, and B.S. Meyer, *Astrophysical J.* **433**, 229 (1994).
95. "Statistical Constraints on Inflation from the *COBE DMR* Results," H. Kurki-Suonio and G.J. Mathews, *Phys. Rev.*, **D50**, 5431 (1994).
96. "Absence of a Lower Limit on Ω_b in Inhomogeneous Primordial Nucleosynthesis," K. Jedamzik, G.J. Mathews, and G.M. Fuller, *Astrophysical Journal* **441**, 465 (1995).
97. "A Merger Model and Globular Cluster Formation," S. Lee, D.N. Schramm, and G.J. Mathews, *Astrophysical Journal* **449**, 616 (1995).
98. "Beryllium and Boron Nucleosynthesis and New Interstellar Accretion," Y. Yoshii, G.J. Mathews and T. Kajino, *Astrophysical Journal* **447**, 184 (1995).
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159. "Moderate-Frequency QPOs in X-ray Binaries via Bardeen Pederson Effect," P.C. Fragile, G.J. Mathews, and J.R. Wilson, *BAPS* 46, 92 (2001).
160. "Numerical Modeling of Gamma-Ray Bursts from Heated Neutron-Star Binaries," J.D. Salmonson, J.R. Wilson, and G.J. Mathews, *BAPS* 46, 97 (2001).
161. "r-process in supernova explosions; prompt vs delayed," K. Sumiyoshi, M. Terasawa, G.J. Mathews, T. Kajino, S. Yamada, H. Suzuki, 2001APS..HAW.SB010S.
162. "r-process nucleosynthesis in Type-II Supernova Model with Neutron Star Mass 1.4 Msolar." Mariko Terasawa, Kousuke Sumiyoshi, Toshitaka Kajino, Grant Mathews, Karlheinz Langanke, 2001APS..HAW.SB009T.
163. "Cosmic Quintessence and Primordial Nucleosynthesis," G.J. Mathews, M. Yahiro, I. Ichiki, T. Kajino, M. Orito, 2001APS..HAW.DF003M.
164. "Neutrino Decoupling and Its Effect on BBN and CMB," Otito Manabu, Kajino Toshitaka, Grant Mathews, Richard Boyd, 2001APS..HAW.DF001M.
165. "Numerical Simulations of Black Hole Accretion Flows," Chris Fragile, Peter Anninos, Grant Mathews, James Wilson, American Physical Society, April Meeting, Jointly Sponsored with the High Energy Astrophysics Division (HEAD) of the American Astronomical Society April 20 - 23, 2002 Albuquerque Convention Center Albuquerque, New Mexico Meeting ID: APR02, abstract #C12.005, 2002APS..APRC12005.
166. "Cosmochronology and the Universality of r-process Abundances," K. Otsuki, G.J. Mathews, T. Kajino, W. Aoki, S. Honda, *BAAS* Vol. 34, p.1205 (2002).
167. "Cosmochronology and universality of r-process," Kaori Otsuki, Grant J. Mathews, American Physical Society, 2002 Fall Meeting of the Division of Nuclear , abstract #CF.005.
168. "Primordial Nucleosynthesis Constraints on Cosmic Quintessence and Brane-World Cosmology," Grant J. Mathews, Kiyotomo Ichiki, Toshitaka Kajino, Manabu Orito, Masanobu Yahiro, American Physical Society, 2002 Fall Meeting of the Division of Nuclear , abstract #CF.004.
169. "Cosmological Constraints on Brane-World Cosmology," G.J. Mathews, P.M. Garnavich, K. Ichiki, T. Kajino, M. Yahiro, *BAAS* 34, p.1269 (2002).
170. "New Limits on the Existence of a Large Compact Dimension for the Universe," D. Menzies-Gow, G.J. Mathews, *BAAS* 35, p.1334 (2003).
171. "A Chemical Evolution Explanation of the Apparent Time Variation of the Fine Structure Constant," T.P. Ashenfelter, G.J. Mathews, K.A. Olive, *BAAS* 35, p.1334 (2003).

172. "A Search of Type II Supernova X-Ray Flashes in Archived ACIS Deep Field Observations," D.G. Race, G.J. Mathews, P.G. Garnivich, BAAS 36, p.587 (2003).
173. "Disappearing Dark Matter in Brane World Cosmology: New Evidence from Supernovae, Galactic Clusters, and the cosmic Microwave Background," G.J. Mathews, P.M. Garnavich, K. Ichiki, T. Kajino, M. Yahiyo, BAAS 35, p.1316 (2003).
174. "Excited-State beta-Decays and r-Process Nucleosynthesis," M.A. Famiano, R.N. Boyd, T. Kajino, G.J. Mathews, American Physical Society, April Meeting, 2003, April 5-8, 2003 Philadelphia, Pennsylvania, MEETING ID: APR03, abstract \#T7.014
175. "Cosmological constraints on brane world cosmology: Evidence for the 5th dimension," Grant Mathews, Peter Garnavich, Kiyotomo Ichiki, Toshitaka Kajino, Masanobu Yahiyo, American Physical Society, April Meeting, 2003, April 5-8, 2003 Philadelphia, Pennsylvania, MEETING ID: APR03, abstract \#C9.006
176. "Disappearing Dark Matter in Brane-World Cosmology: New Evidence from Supernovae, Galaxy Clusters and the CMB," Grant Mathews, Peter Garnavich, Kiyotomo Ichiki, Toshitaka Kajino, Masanobu Yahiyo, American Physical Society, April Meeting, 2004, May 1-4, 2004, Denver, Colorado April 2004, MEETING ID: APR04, abstract \#W10.001
177. "A Chemical Evolution Explanation for the Apparent Time-Dependent Fine Structure Constant," Timothy Ashenfelter, Grant Mathews, Keith Olive, American Physical Society, April Meeting, 2004, May 1-4, 2004, Denver, Colorado April 2004, MEETING ID: APR04, abstract \#W10.002
178. "Examining the Impact of Early AGB Nucleosynthesis on the Apparent Cosmological Variation in the Fine Structure Constant," Timothy Ashenfelter, Grant Mathews, Keith Olive, American Physical Society, Division of Nuclear Physics Meeting, 27-30 October, 2004, Chicago, IL. MEETING ID: DNP04., abstract \#CC.001, BAPS, 49, 38 (2004).
179. "r-Process Nucleosynthesis in the Hot Supernova Bubble: Revisited," Grant Mathews, Kaori Otsuki, James Wilson, Sam Dalhed, American Physical Society, Division of Nuclear Physics Meeting, 27-30 October, 2004, Chicago, IL. MEETING ID: DNP04., abstract \#DC.015, BAPS, 49, 74 (2004).
180. "White Dwarfs with Strange Matter Cores: An Analysis of Candidates," G.J. Mathews, N.Q. Lan, I.-S. Suh, W. Zech, K. Otsuki, F. Weber, The Ultraviolet Universe: Stars from Birth to Death, 26th meeting of the IAU, Joint Discussion 4, 16-17 August 2006, Prague, Czech Republic, JD04, \#31
181. "Evidence for White Dwarfs with Strange-Matter Cores," Grant Mathews, Insaeng Suh, Nguyen Lan, William Zech, Kaori Otsuki, Fridolin Weber, American Physical Society, Division of Nuclear Physics Annual Meeting, October 25-28, 2006, abstract \#CH.003
182. "Relativistically Induced Supernovae," M. Dolan, D. Dearborn, G.J. Mathews, and J.R. Wilson, BAPS, 52, 66 (2007).

183. “Weak Neutrino Magnetism and the r-Process in the Neutrino Heated Superbubble,” G.J. Mathews, J.R. Wilson, and K. Otsuki, BAPS, 52, 67 (2007).
184. “Locally inhomogeneous cosmology as a possible explanation of dark matter,” X. Zhao, G.J. Mathews, I.-S. Suh, and J.R. Wilson, BAPS, 52, 193 (2007).
185. “Core Collapse Supernovae and the r-process: An Amalgam of Current Ideas,” M. Meixner, G.J. Mathews, J.R. Wilson, and K. Otsuki, BAPS, 52, 23 (2007).
186. “Big Bang Nucleosynthesis of ${}^6\text{Li}$ and ${}^7\text{Li}$,” G.J. Mathews, M. Kusakabe, T. Kajino, T. Yoshida, and R.N. Boyd, BAPS, 52, 23 (2007).

Invited Talks and Colloquia

- Oct 1975 University of Maryland, Nuclear Chemistry Seminar. *r-Process Nucleosynthesis, Superheavy Elements, and Recent Atomic Mass Tables.*
- Jun 1977 California Institute of Technology, Kellogg Seminar. *Cosmic-Ray Nucleosynthesis and Galactic Chemical Evolution.*
- Jan 1979 Texas A&M University, Nuclear Chemistry Colloquium. *Nucleon Transport During Heavy-Ion Collisions.*
- Mar 1979 University of Virginia, Physics Department Colloquium. *Nucleon Transport During Heavy-Ion Collisions.*
- Apr 1979 University of Maryland, Nuclear Chemistry Colloquium. *Nucleon Transport During Heavy-Ion Collisions.*
- Feb 1980 Lawrence Berkeley Laboratory, Nuclear Science Division Seminar. *Missing Matter.*
- Apr 1980 Ohio State University, Physics Department Colloquium. *Angular Momentum in the Cosmic Background Radiation and the Thermodynamic History of the Early Universe.*
- Apr 1980 California Institute of Technology, Kellogg Seminar. *Angular Momentum in the Cosmic Background Radiation and the Thermodynamic History of the Early Universe.*
- Dec 1980 Oregon State University, Chemistry Department Colloquium. *Some Current Aspects on the Origin and History of the Elements .*
- Jan 1981 Lawrence Livermore National Laboratory, A-Division Seminar. *Origin and Evolution of the Elements.*
- Jan 1981 Lawrence Livermore National Laboratory, E-Division Seminar. *Origin and Evolution of the Elements.*
- Mar 1981 University of Minnesota, Physics Department Colloquium. *Origin and Evolution of the Elements.*
- May 1981 Workshop on Nuclear Astrophysics, Tegernsee, Germany. *Synthetic H-R Diagrams for NGC1866.*
- May 1981 Workshop on Nuclear Astrophysics, Tegernsee, Germany. *Systematics of r-Process Abundances in Meteoritic Isotopic Anomalies.*
- Jun 1981 Lawrence Livermore National Laboratory, E-Division Seminar. *Highlights of Nuclear Astrophysics.*

- Jun 1982 Lawrence Livermore National Laboratory, E-Division Seminar. *Nuclear Spallation and the Origin of Cosmic Rays.*
- Jun 1982 NATO Workshop on Composition and Origin of Cosmic Rays, Erice Italy. *Complete Fragment Yields from Spallation Reactions via the Combined Time-of-Flight and $\Delta E - E$ Technique.*
- Jun 1982 NATO Workshop on Composition and Origin of Cosmic Rays, Erice Italy. *Synthetic H-R Diagrams and Stellar Evolution.*
- Jul 1982 Max Planck Institute for Physics and Astrophysics, Garching, Germany. Institute for Astrophysics Seminar. *Synthetic H-R Diagrams as a Constraint on Stellar Evolution.*
- May 1983 Lawrence Livermore National Laboratory, Astrophysics Seminar. *Synthetic H-R Diagrams.*
- May 1983 Workshop on Nuclear Astrophysics, Tegernsee, Germany. *Comparison between Observed and Theoretical H-R Diagrams as a Constraint on Stellar Evolution Theory.*
- May 1983 Workshop on Nuclear Astrophysics, Tegernsee, Germany. *Large-Basis Shell Model Calculations of β -Decay Strength Functions for Applications in Nuclear Astrophysics.*
- May 1983 Workshop on Nuclear Astrophysics, Tegernsee, Germany. *The Role of Direct Radiative Neutron Capture in the r-Process.*
- Oct 1983 OECD/NEA Nuclear Data Committee Specialists Meeting on Yields and Decay Data of Fission Product Nuclides, Brookhaven National Laboratory. *Applications of Fission Product Data to Problems in Stellar Nucleosynthesis.*
- Oct 1983 Lawrence Livermore National Laboratory, E-Division Seminar. *Some Problems in Stellar Evolution and Neutron Capture Nucleosynthesis.*
- Nov 1983 University of Washington, Nuclear Physics Seminar. *Some Problems in Stellar Evolution and Neutron Capture Nucleosynthesis.*
- Jan 1984 Lawrence Livermore National Laboratory, E-Division Seminar. *Synthetic H-R Diagrams for Young Star Clusters in the Magellanic Clouds.*
- Apr 1984 Lawrence Livermore National Laboratory, E-Division Seminar. *What in the World is Going on with the Sr-Rb Cosmic Clock.*
- May 1984 University of California, Davis, Department of Applied Science Colloquium. *Nuclear Astrophysics—A New Look at the Ancient Skies.*
- Jun 1984 NATO Workshop on Stellar Nucleosynthesis, Erice Italy. *Synthetic H-R Diagrams as a Constraint of Stellar Ages and Evolution.*

- Nov 1984 Workshop on Nuclear Shell Models, Drexel University. *Shell-Model Lanczos-Method Studies of the Gamow-Teller Strength Function in Astrophysics.*
- Mar 1985 Workshop on Nucleosynthesis and Its Implications on Nuclear and Particle Physics, Les Arcs, France. *Stellar Diagnostics of the s-Process.*
- Mar 1985 Workshop on Nucleosynthesis and Its Implications on Nuclear and Particle Physics, Les Arcs, France. *Large-Basis Shell-Model Technology in Nucleosynthesis and Cosmology.*
- Apr 1985 Indiana University, Joint Nuclear Physics/Astronomy Seminar. *Ages of Stars and Galaxies from Stellar Evolution and Nucleosynthesis .*
- Apr 1985 University of Michigan, Joint Nuclear Physics/Astronomy Seminar. *Ages of Stars and Galaxies from Stellar Evolution and Nucleosynthesis.*
- May 1985 Conference on Nuclear Data for Basic and Applied Science, Santa Fe. *Some Nuclear Data Needs in Astrophysics .*
- Sep 1985 Accelerated Radioactive Beams Workshop, Parksville, Canada. *Radioactive Ion Beam Research at LLNL.*
- Sep 1985 American Chemical Society Symposium on Nuclei off the Line of Stability, Chicago. *Nuclear Astrophysics Away from Stability.*
- Feb 1986 Washington University, St. Louis, Chemistry Department Colloquium. *In search of the Astrophysical Sites for Neutron-Capture Nucleosynthesis.*
- Jul 1986 Workshop on Advances in Nuclear Astrophysics, Institut de Astrophysique, Paris. *Relativistic (3+1) Dimensional Hydrodynamic Simulations of Compact Interacting Binary Systems.*
- Jul 1986 Workshop on Advances in Nuclear Astrophysics, Institut de Astrophysique, Paris. *Primordial Nucleosynthesis in Inhomogeneous Cosmologies: $\Omega = 1$ with Baryonic Dark Matter.*
- Sep 1987 Canadian Physical Society Invited Talk, Calgary, Canada. *Lattice Gauge Theory as a Nuclear Many-Body Problem.*
- Dec 1987 Symposium on Hot Nuclei, Texas A & M University. *Heavy-Ion Collisions with $A = 10^{57}$: Aspects of Nuclear Stability and the Nuclear Equation of State in Coalescing Neutron-Star Binary Systems.*
- Mar 1988 Institut de Astrophysique, Paris, Astrophysics Colloquium. *The Quark-Hadron Phase Transition, Baryon Diffusion, and Primordial Nucleosynthesis.*
- Mar 1988 Workshop on Dark Matter, Les Arcs, France. *Evolution of Heavy-Element Abundances in the Galactic Halo and Disk.*

- Mar 1988 Les Arcs Workshop on Dark Matter. *Evolution of Baryon Number Density Fluctuations Before, During, and After Primordial Nucleosynthesis.*
- Apr 1988 Fermilab Workshop on QCD in Astrophysics. *The Quark-Hadron Phase Transition and Primordial Nucleosynthesis.*
- Apr 1988 Harvard-Smithsonian Center for Astrophysics, Theoretical Astrophysics Division Seminar. *The Evolution of Baryon Number Density Fluctuations from the QCD Phase Transition.*
- Apr 1988 Yale University, Joint Nuclear Physics/Astronomy Seminar. *Hadronization of the Quark-Gluon Plasma, Primordial Nucleosynthesis of Heavy Elements and Cosmological QCD.*
- May 1988 University of Illinois, Astrophysics Colloquium. *The Quark Hadron Phase Transition and Primordial Nucleosynthesis.*
- Jun 1988 Workshop on the Primordial Lithium Abundance, Livermore, CA. *Galactic Chemical Evolution with Low and High Primordial Lithium.*
- Jun 1988 Gordon Research Conference on Nuclear Physics, Tilton, NH. *The Quark-Hadron Phase Transition in the Early Universe and Primordial Nucleosynthesis.*
- Jun 1988 Lawrence Livermore National Laboratory, Nuclear Chemistry Division Colloquium. *Physical Chemistry for the Early Universe: From Quarks to Uranium.*
- Jul 1988 Workshop on Heavy Ion Physics and Nuclear Astrophysical Problems, University of Tokyo. *Prospects for Understanding the Astrophysical r-Process.*
- Sep 1988 Lawrence Livermore National Laboratory, Physics Department Technical Briefing. *The Well Tempered Radioactive Ion Beam.*
- Oct 1988 Institute of Geophysics and Planetary Physics, Astrophysics Seminar, Lawrence Livermore National Laboratory. *Heavy Element Galactic Chemical Evolution.*
- Nov 1988 University of California, Davis, Department of Applied Science Colloquium. *In Search of the Astrophysical Site for the Origin of Heavy Elements.*
- Mar 1989 Workshop on Atomic Processes in Nuclear Explosives, Lawrence Livermore National Laboratory, Invited Talk. *Supercomputers in Quantum Chromodynamics.*
- May 1989 Ohio State University, Nuclear Physics/Nuclear Astrophysics Seminar. *Tests of Theories of r-Process Nucleosynthesis.*
- Jun 1989 University of California, San Diego, Center for Astrophysics and Space Science Seminar. *In Search of the Astrophysical Site for r-Process Nucleosynthesis.*

- Aug 1989 University of Notre Dame, Nuclear Seminar. *In Search of the Astrophysical Site for r-Process Nucleosynthesis.*
- Sep 1989 Lawrence Livermore National Laboratory, E-Division Seminar. *The Paradox of the Closure Parameter for the Universe.*
- Oct 1989 University of Chicago, Enrico Fermi Institute Astrophysics Seminar. *Heavy Element Nucleosynthesis and Galactic Chemical Evolution.*
- Dec 1989 Clemson University, Physics Department Colloquium. *Heavy Element Nucleosynthesis and Galactic Chemical Evolution.*
- Feb 1990 University of California, Davis, Department of Applied Science Colloquium. *The Missing Matter Problem of the Universe.*
- Feb 1990 University of Arizona, Theoretical Astrophysics Colloquium. *In Search of the Astrophysical Site for r-Process Nucleosynthesis.*
- Mar 1990 Symposium on Cosmology and Nuclear Astrophysics, Physical Society of Japan, Osaka. *Heavy-Element Nucleosynthesis .*
- Apr 1990 Tokyo Metropolitan University, Cosmology and Astrophysics Colloquium. *Deviation from Periodicity in the Large Scale Distribution of Galaxies.*
- Apr 1990 Tokyo Metropolitan University, Cosmology and Astrophysics Colloquium. *A break Paradigm of the Dark Matter Problem and the Omega Problem.*
- Apr 1990 Tokyo Metropolitan University, Cosmology and Astrophysics Colloquium. *Search for the Astrophysical Sites for Heavy Element Nucleosynthesis.*
- Apr 1990 University of Tokyo, Physics Department Colloquium. *Heavy-Element Nucleosynthesis and Galactic Chemical Evolution.*
- Apr 1990 Tokyo Institute of Technology, Physics Department Colloquium. *In Search of the Astrophysical Sites for Heavy Element Nucleosynthesis.*
- Apr 1990 Princeton University, Astrophysics Seminar. *Heavy Element Nucleosynthesis and the Dynamics of Galaxy Formation and Evolution.*
- Apr 1990 Symposium on Nuclear Astrophysics, American Chemical Society, Boston. *Heavy Element Galactic Chemical Evolution.*
- Apr 1990 Workshop on the Science of Intense Radioactive Ion Beams, Los Alamos National Laboratory. *Prospects for Nuclear Astrophysics with Intense Radioactive Ion Beams.*
- May 1990 University of California, San Diego, Physics Department Colloquium. *An Overview of the Dark Matter Problem and the Omega Problem.*

- Sep 1990 Lawrence Livermore National Laboratory, Physics Department Technical Briefing. *Elemental Nucleosynthesis and the Dynamics of Galaxy Formation and Evolution.*
- Sep 1990 Symposium on Primordial Nucleosynthesis and Evolution of Early Universe, University of Tokyo, Japan. *Chaotic Inflation and the Omega Problem.*
- Oct 1990 University of Chicago, Astrophysics Seminar. *Dynamics of Galaxy Formation and Galactic Chemical Evolution.*
- Oct 1990 University of Chicago, Guest Lecture Series. *Standard Big Bang Nucleosynthesis.*
- Oct. 1990 International Symposium on Capture Gamma-Ray Spectroscopy and Related Topics, Invited Talk. *Nuclear and Astronomical Constraints on the Site for r-Process Nucleosynthesis.*
- Oct 1990 University of Chicago, Guest Lecture Series. *Nonstandard Big Bang Nucleosynthesis.*
- Nov 1990 Washington University, St. Louis, Physics Department Colloquium. *In Search of the Site for r-Process Nucleosynthesis.*
- Nov 1990 University of Chicago, Guest Lecture Series. *Nucleocosmochronology and Galactic Chemical Evolution.*
- Nov 1990 University of Illinois at Urbana, Astronomy Colloquium. *Dynamics of Galaxy Formation and Galactic Chemical Evolution.*
- Nov 1990 University of Chicago, Guest Lecture Series. *Thermonuclear Reaction Rates and the Phases of Stellar Evolution .*
- Nov 1990 University of Notre Dame, Physics Department Colloquium. *An Overview of the Inhomogeneous Big Bang: If You Don't Like the Standard Homogeneous Big Bang, You Can Lump It.*
- Nov 1990 Ohio State University, Physics Department Colloquium. *Chaotic Inflation and the Omega Problem.*
- Dec 1990 University of Chicago, Guest Lecture Series. *Neutron Capture Nucleosynthesis.*
- Dec 1990 Michigan State University, Joint Astronomy/Nuclear Physics Seminar. *An Overview of the Inhomogeneous Big Bang: If You Don't Like the Standard Homogeneous Big Bang, You Can Lump It.*
- Dec 1990 Fermilab National Accelerator Laboratory, Astrophysics Colloquium. *Chaotic Inflation and the Omega Problem.*

- Jan 1991 Workshop on Strong, Weak, and Electromagnetic Interactions in Nuclei, Astom, and Astrophysics, Lawrence Livermore National Laboratory. *Exploring the Universe with the Shell Model.*
- Jan 1991 Institute of Geophysics and Planetary Physics Seminar, Astrophysics Seminar. Lawrence Livermore National Laboratory. *Stochastic Inflation and the Omega Problem.*
- Apr 1991 American Physical Society Invited Talk, Washington, D.C. *Nuclear Astrophysics Away from Stability: The Need for Radioactive Ion Beams.*
- Sep 1991 Clemson University, Physics Department Colloquium. *An Overview of the Inhomogeneous Big Bang: If You Don't Like the Standard Homogeneous Big Bang, You Can Lump It.*
- Nov 1991 Golden Gate Chemical Society, Invited Lecture, Hayward, CA. *How Did the Universe Begin and Why is it so Empty?*
- Jan 1992 Workshop on the Primordial Helium Abundance, Clemson University. Invited Talk. *Irregular Galaxy Evolution and the Primordial Helium Abundance.*
- Jan 1992 Workshop on the Primordial Helium Abundance, Clemson University. Invited Talk. *Limits to the Primordial Helium Abundance in Inhomogeneous Big Bang Models.*
- May 1992 Workshop on the Galactic Chemical Dynamics, Clemson University. *Protogalactic Mergers and Cosmochronology.*
- May 1992 Workshop on the Galactic Chemical Dynamics, Clemson University. Invited Talk. *Irregular Galaxy Evolution and the Primordial Helium Abundance.*
- Jan 1992 Workshop on the Primordial Helium Abundance, Clemson University. Invited Talk. *Limits to the Primordial Helium Abundance in Inhomogeneous Big Bang Models*
- Jun 1992 American Astronomical Society, Ohio State University. Invited Talk. *Formation of the Galaxy and Cosmochronology.*
- Sep 1992 Symposium on Nuclear Physics in the Universe, Oak Ridge. Invited Talk *Origin of r-Process Elements in the Galaxy*
- Oct 1992 University of Oklahoma, Physics Department Colloquium. *Galaxy Formation and Cosmochronology.*
- Oct 1992 University of Oklahoma, Astronomy Department Seminar. *Heavy Element Synthesis in the Hot Supernova Bubble.*
- Oct 1992 University of Chicago, Astrophysics Seminar. *Heavy Element Synthesis in the Hot Supernova Bubble.*

- Oct 1992 Hayward State University, Physics Department Colloquium. *Galaxy Formation and Cosmochronology.*
- Nov 1992 Canadian Institute for Theoretical Astrophysics, Astrophysics Colloquium. *Galaxy Formation and Cosmochronology*
- Feb 1993 University of Texas, McDonald Observatory, Astronomy Colloquium. *Galaxy Formation and Cosmochronology*
- Feb 1993 Rice University, Physics Department Colloquium. *Galaxy Formation and Cosmochronology.*
- Feb 1993 Rice University, Astrophysics Seminar. *Heavy Element Nucleosynthesis in the Hot Supernova Bubble*
- Feb 1993 Rice University, Gamma-Ray Astronomy Seminar. *A Coalescing Neutron Star Model for Cosmological Gamma-Ray Bursts*
- Jun 1993 Third International Conference on Radioactive Nuclear Beams, Michigan State University. *New Production Mechanisms for Unstable Nuclei in Stars, Supernovae, and the Big Bang.*
- Jun 1993 Symposium on Weak Interactions, Nuclear Astrophysics, and Cosmology in Honor of Sam M. Austin's 60-th Birthday, Michigan State University, *Weak Interactions and Supernovae.*
- Sep 1993 Lawrence Livermore National Laboratory, Astrophysics Seminar. *Constraining Inflation with the Cosmic Microwave Background.*
- Oct 1993 Notre Dame University, Physics Department Colloquium. *Constraining Inflation with the Cosmic Microwave Background.*
- Oct 1993 Notre Dame University, Nuclear Physics Seminar. *Nuclear Weak Interaction\break Rates in Supernovae.*
- Jan 1994 Steward Observatory, Univ. of Arizona, Theoretical Astrophysics Seminar. *Nucleosynthesis in the Neutrino Energized Wind from Supernovae.*
- Jan 1994 Steward Observatory, Univ. of Arizona, Departmental Colloquium. *Galaxy Formation and Cosmochronology.*
- Feb 1994 University of California at Davis, Physics Department Colloquium. *Constraining Inflation with the Cosmic Microwave Background.*
- Feb 1994 Lake Louise Winter Institute on Particle Astrophysics and Cosmology Joint ISAC Workshop. *Weak Interactions and Heavy Element Nucleosynthesis in the Hot Supernova Bubble.*

- Feb 1994 Rice University, Physics Department Colloquium. *Constraining Ripples in the Big Bang.*
- Feb 1994 Rice University, Astrophysics Seminar. *Heavy Element Nucleosynthesis in the Hot Supernova Bubble.*
- Mar 1994 Workshop on Applications of the National Ignition Facility Lawrence Livermore National Laboratory.
- Mar 1994 ACS Symposium on Novel Approaches to Nuclear Astrophysics, San Diego, CA. *Creating Stars, Supernovae, and the Big Bang in the Laboratory: Nuclear Astrophysics with the Proposed National Ignition Facility.*
- Apr 1994 Third International Workshop on Galactic Chemical Dynamics, Lawrence Livermore National Laboratory, Institute of Geophysics and Planetary Physics. *Galaxy Formation, MACHOS, and Cosmochronology.*
- Apr 1994 Notre Dame University Physics Department, Colloquium. *Weak Interactions and Supernova Dynamics.*
- Apr 1994 Michigan State University Department of Physics and Astronomy Colloquium. *Weak Interactions and Supernova Dynamics.*
- Apr 1994 Michigan State University, Astronomy Seminar. *Constraining Inflation with the Cosmic Microwave Background.*
- Apr 1994 National Astronomical Observatory, Japan, Theoretical Astrophysics Seminar. *Weak Interactions and Supernova Dynamics*
- May 1994 National Astronomical Observatory, Japan, Astronomy Colloquium. *Galaxy Formation and Cosmochronology*
- May 1994 University of Tokyo, Astronomy Colloquium. *Weak Interactions and Supernova Dynamics*
- May 1994 Osaka University, Laser Physics Colloquium. *Creating Stars, Supernovae, and the Big Bang in the Laboratory: Nuclear Astrophysics with the Proposed National Ignition Facility*
- Jun 1994 Institute of Nuclear Science, Tokyo, Colloquium. *Weak Interactions and Supernova Dynamics*
- Jun 1994 RIKEN National Laboratory, Tokyo, Nuclear Colloquium. *Inhomogeneous Primordial Nucleosynthesis*
- Jul 1994 Workshop on Nuclear and Particle Astrophysics and Cosmology for the Next Millennium, Snowmass, Co, Invited Talk. *Nonstandard Primordial Nucleosynthesis*

- Jul 1994 Workshop on Nuclear and Particle Astrophysics and Cosmology for the Next Millennium, Snowmass, CO, Summary Talk. *Summary of the Future for Primordial and Stellar Nucleosynthesis*
- Sep 1994 Lawrence Livermore National Laboratory, Institute for Geophysics and Planetary Physics, Astrophysics Seminar. *Relativistic Binary Neutron Star Coalescence*
- Oct 1994 University of Oklahoma, Physics Department, Colloquium. *Relativistic Binary Neutron Star Coalescence*
- Dec 1994 Wayne State University, Physics Department, Colloquium. *Relativistic Binary Neutron Star Coalescence*
- Apr 1995 Workshop on Isotopic Anomalies, Clemson University, Invited Talk. *Galactic Chemical Dynamics and Cosmochronology*
- Apr 1995 Workshop on Isotopic Anomalies, Clemson University, Invited Talk. *Relativistic Binary Neutron Star Coalescence and Decompressing Neutron Star Matter*
- Jul 1995 Workshop on Galactic Chemodynamics 4: The History of the Milky Way and it's Satellite System, Tegernsee, Invited Talk. *Galactic Chemical Dynamics and Cosmochronology*
- Oct 1995 Third Huntsville Workshop on Gamma Ray Bursts, Huntsville, Ala., Contributed Talk. *General Relativistic Simulation of Close Neutron Star Binaries: Implications for Cosmological Gamma-Ray Bursts*
- Jan 1996 Second International Workshop on Gravitational Microlensing, Orsay, France, Invited Talk. *Hot X-ray Gas and the Formation of Remnants in the Galactic Halo*
- Apr 1996 Univ. Illinois, Physics Department Colloquium. *Relativistic Binary Neutron Star Coalescence*
- Jan 1996 Second International Workshop on Gravitational Microlensing, Orsay, France, Invited Talk. *Hot X-Ray Gas and the Formation of Remnants in the Galactic Halo*
- Apr 1996 Univ. Illinois, Astronomy Department Colloquium. *Relativistic Binary Neutron Star Coalescence*
- Aug 1996 Oak Ridge National Laboratory, Physics Department Colloquium. *Instabilities in Close Neutron Star Binaries*
- Sep 1996 International Workshop on the Identification of Dark Matter, University of Sheffield, UK. *Hot Intercluster Medium and Halo Microlensing Events*

- Sep 1996 Oakland University, Rochester, MI, Physics Department Colloquium. *Hot Stars and Cold Gas: Clues to the Origin and Evolution of Galaxies*
- Oct 1996 Indiana University-Purdue University, Indianapolis, IN, Physics Department Colloquium. *Instabilities in Close Neutron Star Binaries*
- Nov 1996 Bowling Green State University, Sixth Midwest Relativity Meeting, Bowling Green, OH, Invited Talk. *Instabilities in Close Neutron Star Binaries*
- Jan 1997 Fermilab, Batavia, IL, Theoretical Astrophysics Seminar. *Instabilities in Close Neutron Star Binaries*
- Jan 1997 Aspen Winter Conference on Gravitational Waves and Their Detection, Center for Physics, Aspen, Colorado. Invited Talk. *Numerical Relativistic Hydrodynamics Results Relevant to Gravity Wave Detectors*
- Feb 1997 Hope College, Holland, Michigan. Physics Department Colloquium. *Instabilities in Close Neutron Star Binaries*
- Feb 1997 University of Arizona, Tucson, Arizona. Theoretical Astrophysics Colloquium. *Instabilities in Close Neutron Star Binaries*
- Feb 1997 University of Arizona, Tucson, Arizona. Astronomy Colloquium. *Halo White Dwarfs and the Hot Intergalactic Medium*
- Mar 1997 Third International Workshop on Gravitational Microlensing Surveys, University of Notre Dame, Notre Dame, Indiana. Invited Talk. *Halo Remnants and Galactic Chemical Dynamics*
- May 1997 Spacetime '97, Michigan State University, East Lansing, Michigan. Invited Talk. *Heavy Ion Collisions with $A=10^{58}$: Methods of General Relativistic Hydrodynamics*
- June 1997 University of North Carolina, Chapel Hill, North Carolina. Astrophysics Colloquium. *General Relativistic Numerical Hydrodynamics for Close Neutron Star Binaries*
- June 1997 Eighth Marcel Grossmann Meeting on General Relativity, Givat Ram Campus, The Hebrew University, Jerusalem. Invited Talk. *Relativistic Studies of Close Neutron Star Binaries*
- June 1997 Eighth Marcel Grossmann Meeting on General Relativity, Givat Ram Campus, The Hebrew University, Jerusalem. Invited Talk. *Gamma-Ray Bursts from Neutron Star Binaries*
- July 1997 International Workshop on the Synthesis of Light Nuclei in the Early Universe, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy. Invited Talk. *Galaxy Formation and Light Element Abundances*

- July 1997 International Workshop on the Synthesis of Light Nuclei in the Early Universe, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy. Invited Talk. *Comments on Standard, Nonstandard and Inhomogeneous Primordial Nucleosynthesis*
- Nov 1997 Workshop on the Origin of Matter and Evolution of Galaxies, Atami, Japan. Invited Talk. *Development and Problems in the r-Process Scenario*
- Nov 1997 Yukawa Institute of Theoretical Physics, Kyoto University, Japan. Astrophysics Colloquium. *Relativistic Hydrodynamics Effects in Close Neutron Star Binaries*
- Nov 1997 3rd RESCUE International Symposium on Particle Cosmology, University of Tokyo, Japan. *Comments on Nonstandard Primordial Nucleosynthesis*
- Nov 1997 International Symposium on Neutron Stars and Pulsars: Thirty Years after the Discovery, Rikkyo University, Tokyo, Japan. Invited Talk. *General Relativistic Hydrodynamics of Close Neutron Star Binaries*
- Jan 1998 Winter Workshop on Universal Star Formation, Aspen Center for Physics, Aspen, CO. Overview Talk. *Importance of Star Formation in Cosmology*
- Mar 1998 International Workshop on Japan Hadron Facility Science, High Energy Accelerator Research Organization (KEK), Tsukuba, Japan. Key-Note Address. *Nuclear Astrophysics with Radioactive Ion Beams*
- Mar 1998 East Coast Nickel and Dime Gravity Meeting, Syracuse University, Syracuse, NY. Invited Talk. *Relativistic Hydrodynamics in Close Binary Systems: Analysis of Neutron Star Collapse*
- Jul 1998 Workshop on Applications of High Precision Gamma-Ray Spectroscopy, University of Notre Dame. Invited Talk. *Current Topics in Gamma-Ray Astrophysics*
- Jul 1998 5th International Workshop on Nuclei in the Cosmos, Volos, Greece. Invited Talk. *Models for Gamma-Ray Bursts from Binary Neutron Stars*
- Sep 1998 University of Michigan, Ann Arbor, Michigan. Astrophysics Colloquium. *General Relativistic Hydrodynamics for Binary Neutron Stars*
- Oct 1998 Indiana University, Bloomington, Indiana. Astronomy Department Colloquium. *Where have all the Baryons gone? An analysis of white dwarfs in the galactic halo and the hot intergalactic medium*
- Oct 1998 Indiana University, Bloomington, Indiana. Astronomy Seminar. *General Relativistic Hydrodynamics for Binary Neutron Stars*

- Nov 1998 Frontiers in Nuclear Astrophysics Workshop, Argonne National Laboratory, Argonne, Illinois. Invited Talk. *Towards Understanding the r-Process: A Summary of recent progress in supernova r-process models and computations of nuclear properties far from stability*
- Nov 1998 Area Meeting on Variable Stars, Astronomy Department, Michigan State University, East Lansing, Michigan. Invited Talk. *Stellar Evolution and Variability of Betelgeuse*
- Dec 1998 Workshop on LiBeB, Cosmic Rays and Gamma-Ray Line Astronomy, Institut d'Astrophysique de Paris, CNRS, Paris, France. Invited Talk. *Formation and Evolution of the Halo: Implications for Light Elements*
- Jun 1999 11th Summer School in Nuclear Physics in Celebration of Maria Mayer and the 50th Anniversary of the Shell Model, University of California, San Diego, California. Invited Lecture. *Unsolved Mysteries in Post Main-Sequence Stellar Evolution*
- Jun 1999 11th Summer School in Nuclear Physics in Celebration of Maria Mayer and the 50th Anniversary of the Shell Model, University of California, San Diego, California. Invited Lecture. *Neutron Star Hydrodynamics*
- Jul 1999 11th Summer School in Nuclear Physics in Celebration of Maria Mayer and the 50th Anniversary of the Shell Model, University of California, San Diego, California. Invited Lecture. *Supernovae and Gamma-Ray Bursts*
- Nov 1999 9th Midwest Relativity Meeting, University of Illinois at Urbana-Champaign. Invited Talk. *Revised Relativistic Hydrodynamical Model for Neutron-Star Binaries*
- Jan 2000 OMEG 2000 Conference on the Origin of Matter and the Evolution of Galaxies, Tokyo University, Center for Nuclear Science. Invited Talk. *Neutron Star Mysteries*
- Mar 2000 Shell Model 2000 International Symposium, RIKEN (Institute of Physical and Chemical Research), Tokyo. Invited Talk. *Shell Model Studies near the $A=130$ r-Process Wairing Point*
- Mar 2000 National Astronomical Observatory, Tokyo, Japan. Astronomy Colloquium. *Studies of Compact Objects: White Dwarfs, Neutron Stars and Black Holes*
- Mar 2000 Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan. Astrophysics Seminar. *Reconstruction of Stellar Orbits around SgrA*: Possibilities for Testing General Relativity*
- Mar 2000 Japanese Physical Society Meeting, Kinki University, Osaka, Japan. Invited Talk. *Unsolved Mysteries of Post-Main Sequence Evolution*

- Apr 2000 Hanyang University, Seoul, Korea. Astrophysics Seminar. *Some Mysteries of Compact Objects: White Dwarfs, Neutron Stars and Black Holes*
- Apr 2000 Asia-Pacific Center for Theoretical Astrophysics & Korean Institute for Advanced Study, Seoul, Korea. Joint Seminar. *Energetic Gamma Rays from Gamma-Ray Bursts*
- Apr 2000 Korean Physical Society Meeting, Seoul, Korea. Invited Talk. *Exploring the Black Hole in the Galactic Center*
- May 2000 Tokyo University, Tokyo, Japan. Astronomy Department Seminar. *Sub-TeV Gamma Rays from Gamma-Ray Bursts: An Interpretation*
- Jun 2000 National Astronomical Observatory, Tokyo, Japan. Theoretical Astrophysics Seminar. *New Evidence for Neutrino Degeneracy in the Early Universe*
- Sep 2000 TOURS 2000, Symposium on Nuclear Physics IV, Tours, France. Overview Talk. *Cosmology, Cosmic Chemical Evolution and the Age Problem*
- Nov 2000 International Conference on Cosmic Evolution, Institut d'Astrophysique, Paris, France. Invited Talk. *New Insights into Neutron-Capture Nucleosynthesis*
- Jan 2001 Workshop on Nuclear Incompressibility, University of Notre Dame. Invited Talk. *Nuclear Incompressibility, Supernovae and the r-Process*
- Feb 2001 Department of Physics and Astronomy, University of Oklahoma. Colloquium. *New evidence for Neutrino Degeneracy in the Early Universe*
- Feb 2001 Workshop on Frontiers in Nuclear Astrophysics, Argonne National Laboratory. Invited Talk. *New Paradigms for Neutron-Capture Nucleosynthesis*
- Apr 2001 American Physical Society Meeting, Washington, DC. Invited Talk. *New Paradigms for Nucleosynthesis in the Early Universe and First Generation of Stars*
- Jun 2001 Korean Workshop on Numerical Methods for Astrophysical Flows, Pusan University, Korea. Invited Talk. *Relativistic Hydrodynamic Simulations of Quasiperiodic Oscillations*
- Jul 2001 Tokyo University, Japan. Astronomy Seminar. *Relativistic Hydrodynamic Simulations of Quasiperiodic Oscillations*
- Jul 2001 National Astronomical Observatory, Japan. Theoretical Astrophysics Seminar. *Relativistic Hydrodynamic Simulations of Quasiperiodic Oscillations*
- Oct 2001 University of Illinois. Theoretical Astrophysics Seminar. *Cosmic Quintessence, k-Essence and Primordial Nucleosynthesis*

- Oct 2001 Fermilab, Illinois. Theoretical Astrophysics Seminar. *New Paradigms for Nucleosynthesis in the Early Universe and First Generation of Stars*
- Oct 2001 Fermilab, Illinois. Astrophysics Seminar. *The Case for Neutrino Degeneracy*
- Oct 2001 First Joint Meeting of the Nuclear Physicists of the American and Japanese Physical Societies, Maui, Hawaii. Invited Talk. *New into Neutron-Capture Nucleosynthesis*
- Oct 2001 Mini-symposium on High Temperature Nucleosynthesis. First Joint Meeting of the Nuclear Physicists of the American and Japanese Physical Societies, Maui, Hawaii. Invited Talk. *High-Temperature Nucleosynthesis on the Neutron-Rich Side of Stability*
- Nov 2001 State University of New York, Stonybrook, New York. Astronomy Colloquium. *New Paradigms for Nucleosynthesis in the Early Universe and First Generation of Stars*
- July 2002 7th International Symposium on Nuclei in the Cosmos, Fuji-Yoshida, Japan. Invited Overview Talk. *New Paradigms in Primordial Nucleosynthesis*
- July 2002 Workshop on Light-to-Heavy Elements in Cosmology and Galactic Evolution, National Astronomical Observatory, Tokyo, Japan. Invited Overview Talk. *Cosmology and Nuclear Astrophysics*
- Sep 2002 University of Notre Dame. Physics Department Colloquium. *New Paradigms for the Big Bang: Dark Energy and the Fifth Dimension*
- Oct 2002 Workshop of the Joint Institute of Nuclear Astrophysics, Gull Lake, Michigan. Invited Talk. *New Insights into the Nature and Origin of the r-Process*
- Jan 2003 Institute of Geophysics and Planetary Physics, Lawrence Livermore National Laboratory, Livermore, California. Astrophysics Seminar. *Cosmological Confronts the Fifth Dimension: Constraints on Dark Energy and Dark Radiation*
- Jan 2003 University of Notre Dame. Astrophysics Seminar. *Cosmology Confronts the fifth dimension: A deeper look at dark radiation, dark energy and dark matter*
- Feb 2003 Carnegie Observatories Centennial Symposium IV, Origin and Evolution of the Elements, Pasadena, California. Invited Talk. *An Update on the Hot Supernova Bubble r-Process: Roles of MHD and Neutrino Oscillations*
- Mar 2003 University of Illinois, Department of Physics. Cosmology Forum. *Cosmology Confronts the fifth dimension: A deeper look at dark radiation, dark energy and dark matter*
- Mar 2003 SUGRA 20, International Workshop. Invited Talk. *Cosmological Evidence for Decaying Dark Matter in Brane-World Cosmology*

- May 2003 KIAS-KAIST. Invited Talk. Joint Workshop on Physics Beyond the Standard Model, Korean Institute for Advancement of Science, Seoul, Korea. *Observational Constraints on Brane-World Cosmology: Evidence for the 5th Dimensions*
- May 2003 Great Lakes Cosmology Workshop, University of Michigan, Center for Theoretical Physics. Invited Talk. *Dark Energy, Dark Radiation, and Disappearing Dark Matter in Randall-Sundrum Cosmology*
- Jul 2003 Tenth Marcell Grossmann Meeting on General Relativity, CBPF-IRCA, Rio de Janeiro, Brazil. Invited Talk. *Relativistic Compression of Neutron Stars and White Dwarfs*
- Jul 2003 Tenth Marcell Grossmann Meeting on General Relativity, CBPF-IRCA, Rio de Janeiro, Brazil. Invited Talk. *Disappearing Dark Matter in brane-world cosmology: New Limits on noncompact extra dimensions*
- Nov 2003 Workshop on Origin of Matter and Evolution of Galaxies (OMEG03), RIKEN, Saitama, Japan. Invited Overview Talk. *Origin and Evolution of Galaxies in Brane-World Cosmology*
- Jan 2004 First Argonne/MSU/INT RIA Workshop: The r-Process: the Astrophysical Origin of the Heavy Elements and Related Rare Isotope Accelerator Physics, Institute of Nuclear Theory, University of Washington, Seattle, Washington. Invited Talk. *An update on the Hot Bubble r-Process*
- Jan 2004 Workshop on Studies of Dark Energy and Cosmology with X-Ray Surveys, Greenbelt, Maryland. Invited Talk. *X-Ray Probes of the Fifth Dimension: Disappearing Dark Matter and Brane-World Cosmology*
- Feb 2004 University of Michigan Center for Theoretical Physics, Ann Arbor, Michigan. Joint High Energy Physics/Astrophysics Seminar. *White-Dwarf/Black-Hole Collisions: A New Mechanism for Type I Supernovae*
- Feb 2004 University of Notre Dame. Astrophysics Seminar. *White-Dwarf/Black-Hole Collisions: A New Mechanism for Type I Supernovae*
- Apr 2004 University of Minnesota, School of Physics & Astronomy. Astrophysics Seminar. *Black Holes and White Dwarfs: A New Paradigm for Type I Supernovae*
- May 2004 “The Dark Side of the Universe” Workshop, Michigan Center for Theoretical Physics, University of Michigan, Ann Arbor, Michigan. Invited Talk. *Dark Radiation and Dark Matter: A View into the Fifth Dimension*
- Jul 2004 Workshop on Supernova Theory and Nucleosynthesis, University of Washington, Seattle, Washington. Invited Talk. *STAN and the Giant Supernova Bubble*

- Jul 2004 Nuclei in the Cosmos VIII Vancouver, BC, Canada. Invited Talk. *Galactic Chemical Evolution, AGB Stars, and the Apparent Variation of the Fine-Structure Constant*
- Aug 2004 5th Rencontres du Vietnam on Particle Physics and Astrophysics: New Views on the Universe, Hanoi, Vietnam. Invited Talk. *Primordial Nucleosynthesis in the New Cosmology*
- Sep 2004 COSMO-04 International Workshop on Particle Physics and the Early Universe, Canadian Institute for Theoretical Physics, University of Toronto, Ontario, Canada. Invited Talk. *Resonant Particle Creation during Inflation: Hunting Plank-Mass Particles in the CMB and Lyman- γ Forest*
- Oct 2004 Institute for Theoretical Physics, University of Minnesota. Cosmology Seminar. *Resonant Particle Creation during Inflation: Hunting Plank-Mass Particles in the CMB and Lyman- γ Forest*
- Nov 2004 Omnibus Lecture Series on Particle Astrophysics and Cosmology, National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan. *The Search for the Parallel Universes and Extra Dimensions*
- Nov 2004 Omnibus Lecture Series on Particle Astrophysics and Cosmology, National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan. *Big Bang Nucleosynthesis in the New Cosmology*
- Nov 2004 Omnibus Lecture Series on Particle Astrophysics and Cosmology, National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan. *An update on core-collapse Supernovae and r-Process Nucleosynthesis*
- Nov 2004 Omnibus Lecture Series on Particle Astrophysics and Cosmology, National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan. *White Dwarfs in Binaries and Type I Supernovae*
- Nov 2004 National Astronomical Observatory, Mitaka, Tokyo, Japan. Astronomy Colloquium. *Resonant Particle Creation during Inflation: Hunting Plank-Mass Particles in the CMB and Lyman- γ Forest*
- Dec 2004 Physics Department, Florida Atlantic University, Boca Raton, Florida. Colloquium. *The Cosmological Search for Parallel Universes and Extra Dimensions*
- Jan 2005 CANDU, Center for Astrophysics, University of Notre Dame. Astrophysics Seminar. *An update on core-collapse Supernovae and r-Process Nucleosynthesis*
- Jan 2005 JINA r-process Workshop, University of Notre Dame. *r-Process in the Hot Supernova Bubble: Where do we stand and where do we go from here?*
- Feb 2005 Forever Learning Institute, South Bend, IN. Public Outreach Talk. *The Hunt for Parallel Universes and the Fifth Dimension*

- Feb 2005 McKenna Hall, University of Notre Dame. Year of Physics Public Outreach Lecture. *Einstein's Last Quest: The Search for Parallel Universes and Extra Dimensions* Jointly with Chris Kolda
- Mar 2005 Interdisciplinary Workshop on the Nuclear Shell Model, Astrophysics, and Solid-State Physics, RIKEN, CNS. *Recent Progress in Core-Collapse Supernova Explosion Models and r-Process Nucleosynthesis*
- Apr 2005 South Bend, Indiana. Quarknet Outreach Talk. *The Hunt for Parallel Universes and the Fifth Dimension*
- May 2005 St. Joseph Highschool, South Bend, Indiana. Physics Public Outreach Lecture. *A Journey to the Center of the Galaxy: A Giant Black Hole, Lost Matter; and Exploding Stars*
- Jun 2005 Vietnamese Academy of Science and Technology, Institute of Physics and Electronics, Hanoi, Vietnam. Colloquium. *An Introduction to Cosmology, Dark Matter and Dark Energy*
- Jun 2005 Center for Theoretical Physics, Institute of Physics, Hanoi University, Vietnam. Colloquium. *The Cosmological Search for Parallel Universes and Extra Dimensions*
- Jun 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part I: Introduction to Cosmology, Dark Matter and Dark Energy*
- Jun 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part II: The Beginning: various views on inflation, the multiverse, and the pre-big bang*
- Jun 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part III: The Cosmological Search for Extra Dimensions and Parallel Universes*
- Jun 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part IV: The First Elements: Primordial nucleosynthesis and early galactic chemical evolutions*
- Jun 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part V: An Introduction to Relativistic Hydrodynamics*
- Jul 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part VI: An Update on Core-Collapse Supernovae and r-Process Nucleosynthesis*

- Jul 2005 Tokyo University Center of Excellence Distinguished Lecture Series on Particle Cosmology, Supernova Explosions and Nucleosynthesis. *Part VII: White Dwarfs, Neutron Stars, and Type I Supernovae*
- Jul 2005 Tokyo University. Astronomy Department Colloquium. *An update on core-collapse Supernovae and r-Process Nucleosynthesis*
- Aug 2005 CANDU, Center for Astrophysics, University of Notre Dame. Astrophysics Seminar. *The Beginning: various views on inflation, the multiverse, and the pre-big bang*
- Oct 2005 Indiana University Cyclotron Facility, Mini-symposium in honor of Vic Viola Celebration of a Career. Invited Talk. *Keeping up with V2: Exploding stars, Melting cyclotrons, Phantom gamma rays, and the search for more Lithium*
- Mar 2006 Florida Atlantic University. Physics Department Colloquium. *Alternative Views of Dark Energy and Dark Matter*
- Mar 2006 SENFU06 Shell Model Workshop, Tokyo University. Invited Talk. *Nuclear Physics Needs in the Supernova Bubble r-process: Where do we stand and where do we go from here?*
- May 2006 Workshop on Fundamental Astro-Particle Physics, Center for Cosmology and Astroparticle Physics, The Ohio State University. Invited Talk. *Non-Standard Big Bang Nucleosynthesis*
- May 2006 Workshop on External Correlations of the CMB and Cosmology, Fermilab, Batavia, IL. Invited Talk. *Constraints on Resonant Particle Production and Primordial Magnetic Fields from the CMB and LSS on Small Angular Scales*
- Jun 2006 International Symposium on Nuclear Astrophysics – Nuclei in the Cosmos – IX, CERN, Geneva, Switzerland. Invited Talk. *Early Star Formation, Nucleosynthesis, and Chemical Evolution in Proto-Galactic Clouds*
- Jul 2006 Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin. Invited Talk. *Evidence for White Dwarfs with Strange Matter Cores*
- Jul 2006 Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin. Invited Talk. *Relativistic Hydrodynamic Simulations of Multiple Orbits for Close Neutron Star Binaries*
- Jul 2006 Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin. Invited Talk. *Dark Energy and Decaying Dark Matter*
- Jul 2006 Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin. Invited Talk. *An Axisymmetric Object-Based Search for a Flat Compact Dimension*

- Jul 2006 Eleventh Marcel Grossmann Meeting on General Relativity, Freie Universität Berlin. Invited Talk. *Constraints on Accelerating Brane Cosmology with Exchange between the Bulk and Brane*
- Aug 2006 Mahidol University, Bangkok, Thailand. Astrophysics Seminar. *The First Elements: Primordial Nucleosynthesis and Early Galactic Chemical Evolution*
- Aug 2006 Mahidol University, Bangkok, Thailand. Physics Department Colloquium. *A Journey to the Center of the Galaxy: a Giant Black Hole, Lost Matter, and Exploding Stars*
- Aug 2006 Symposium on Challenges in Particle Astrophysics, 6th Rencontres du Vietnam, Hanoi. Invited Talk. *Unified Approaches to Dark Matter and Dark Energy*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *Introduction to Cosmology, Dark Matter and Dark Energy*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *Evidence and Interpretation of Dark Matter and Dark Energy*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *Birth of the Universe: Various Views on Inflation, the Multiverse, and the Pre-Big Bang*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *The Cosmological Search for Extra Dimensions and Parallel Universes*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *The First Elements: Primordial nucleosynthesis and Early Galactic Chemical Evolution*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *An Introduction to Relativistic Hydrodynamics*
- Aug 2006 Summer School on Astrophysics, Hanoi University of Education. Invited Lecture. *An Update on Supernovae and Early Galactic Nucleosynthesis*
- Sep 2006 University of Notre Dame. Astrophysics Seminar. *Alternative Approaches to Dark Matter and Dark Energy*
- Sep 2006 National Superconducting Cyclotron Laboratory Seminar, Michigan State University. Seminar. *The First Elements: Primordial Nucleosynthesis and Early Galactic Chemical Evolution*
- Nov 2006 Midwest General Relativity Meeting MWRM16, Washington University, St. Louis. Invited Talk. *General Relativistic Alternatives for Dark Matter and Dark Energy*

- Feb 2007 FAUST Seminar, Physics Department, Florida Atlantic University. *Update on Core-Collapse Supernovae and r-Process Nucleosynthesis in the Neutrino Energized Bubble*
- Feb 2007 Florida Atlantic University. Physics Department Colloquium. *A Journey to the Center of the Galaxy: A Giant Black Hole, Lost Matter, and Exploding Stars*
- Apr 2007 American Physical society Meeting, Jacksonville, Florida. Invited Talk on behalf of James R. Wilson, recipient of the 2005 Bethe Prize for Nuclear Astrophysics. *Nuclear Astrophysics and Supernova Core Collapse*
- Apr 2007 Western Michigan University. Physics Department Colloquium. *Alternative Approaches to Dark Matter and Dark Energy*
- May 2007 Workshop on experimental opportunities for nuclear astrophysics, Frankfurt neutron source of the Stern-Gerlach-Zentrum – The FRANZ Neutron Source. Invited Talk. *Some Perspectives on Neutron-Capture Nucleosynthesis in the s-Process*
- May 2007 19th Recontres de Blois, Chateau Royal de Blois, Blois, France. Invited Talk. *Stellar Evolution and Nucleosynthesis in 3D*
- Jun 2007 23rd International Conference on Nuclear Physics, Tokyo International Forum, Japan. Plenary Talk. *Recent Developments in Nuclear Astrophysics*
- Jun 2007 Workshop on Frontiers and Perspectives of Nuclear and Hadron Physics, Tokyo Institute of Technology. Invited Talk. *Frontiers in Nuclear Astrophysics*
- Aug 2007 Nuclear Astrophysics Workshop, National Ignition Facility, Lawrence Livermore National Laboratory. Invited Talk. *Pair Annihilation in the Early Universe*
- Oct 2007 Center for Astrophysics, University of Notre Dame. Seminar. *New Frontiers in Nuclear Astrophysics*
- Nov 2007 2007 International Conference on Cosmology and Particle Physics, National Taiwan University, Taipei, Taiwan. Invited Talk. *Alternative Views on Dark Matter and Dark Energy*
- Dec 2007 10th International Symposium on the Origin of Matter and Evolution of Galaxies, OMEG07. Keynote Address. *Big Bang Cosmology*
- Jan 2008 Physics Department, Hanoi University of Education, Hanoi, Vietnam. Astrophysics Seminar. *Frontiers in Stellar Astrophysics*
- Jan 2008 Hanoi University of Education, Hanoi, Vietnam. Physics Department Colloquium. *Big Bang Cosmology*