

LIST OF PUBLICATIONS & SCIENTIFIC ACHIEVEMENT
of
Toshitaka KAJINO

Refereed Journal Papers

A. Theoretical Physics, Astrophysics and Cosmology

1. T. Kajino, and A. Arima,
Phys. Rev. Lett. **52** (1984), 739-742,
Resonating group calculations of radiative capture reactions ${}^3\text{He}({}^4\text{He},\gamma){}^7\text{Be}$ and
 ${}^3\text{H}({}^4\text{He},\gamma){}^7\text{Li}$ at astrophysical low energies and missing solar neutrino problem.
2. T. Kajino, T. Matsuse, and A. Arima,
Nucl. Phys. **A413** (1984), 323-352,
Electromagnetic properties of ${}^7\text{Li}$ and ${}^7\text{Be}$ in α cluster model.
3. T. Kajino, T. Matsuse, and A. Arima,
Nucl. Phys. **A414** (1984), 185-205,
Effects of breathing excitations of the triton nucleus on the $\alpha + \text{triton}$ cluster in ${}^7\text{Li}$.
4. A. Hosaka, T. Kajino, and H. Toki,
Nuovo Cimento **90A** (1985), 315-320,
Center-of-mass problem for hadrons from the quark model.
5. T. Kajino,
Nucl. Phys. **A460** (1986), 559-580,
The nuclear structure and reactions of ${}^3\text{He}({}^4\text{He}, \gamma){}^7\text{Be}$ and ${}^3\text{H}({}^4\text{He}, \gamma){}^7\text{Li}$
at astrophysical energies.
6. T. Kajino, H. Toki, and S. M. Austin,
Astrophys. J. **319** (1987), 531-540,
Radiative alpha-capture rates leading to $A = 7$ nuclei: Applications to the solar neutrino
problem and big-bang nucleosynthesis.
7. T. Kajino, H. Toki, and K.-I. Kubo,
Phys. Rev. **C35** (1987), 1370-1381,
Pionic fusion and the clustering correlation.
8. S. Hirenzaki, T. Kajino, K.-I. Kubo, H. Toki, and I. Tanihata,
Phys. Lett. **B194** (1987), 20-25,
Pionic atoms of unstable nuclei.

9. T. Kajino, H. Toki, K.-I. Kubo, and I. Tanihata,
Phys. Lett. **B202** (1988), 475-478,
Nuclear matter radii of ${}^7\text{Be}$ and ${}^7\text{Li}$ and astrophysical S-factors for radiative
 α -capture reactions.
10. T. Kajino, E. Shiino, H. Toki, B. A. Brown, and B. H. Wildenthal,
Nucl. Phys. **A480** (1988), 175-187,
Beta decay rates of sd-shell nuclei in stellar interiors.
11. T. Kajino, G. F. Bertsch, and K.-I. Kubo,
Phys. Rev. **C37** (1988), 512-519,
E1 polarizability of ${}^7\text{Li}$ and astrophysical S-factor for ${}^3\text{H}({}^4\text{He}, \gamma){}^7\text{Li}$.
12. K. Sumiyoshi, K. Kusaka, T. Kamio, and T. Kajino,
Phys. Lett. **B225** (1989), 10-14,
Baryon evaporation from cosmic quark-gluon plasma.
13. R. N. Boyd, and T. Kajino,
Astrophys. J. **336** (1989), L55-L58,
Can ${}^9\text{Be}$ provide a test of cosmological theories?
14. T. Kajino, G. J. Mathews, and K. Ikeda,
Phys. Rev. **C40** (1989), 525-530,
Branching ratios for ${}^3\text{He}({}^4\text{He}, \gamma){}^7\text{Be}$ and ${}^3\text{H}({}^4\text{He}, \gamma){}^7\text{Li}$.
15. M. Mizoguchi, K. Sumiyoshi, T. Kajino, and H. Toki,
Prog. Theor. Phys. **81** (1989), 1217-1225,
Pion-nucleus scattering in the GeV region.
16. M. Fukugita and T. Kajino,
Phys. Rev. **D42** (1990), 4251-4253,
Contribution of the ${}^3\text{He}({}^3\text{H}, \gamma){}^6\text{Li}$ reaction to primordial ${}^6\text{Li}$ production.
17. T. Kajino, and R. N. Boyd,
Astrophys. J. **359** (1990), 267-276,
Production of light elements in primordial nucleosynthesis.
18. K. Sumiyoshi, T. Kajino, C. Alcock, and G. Mathews,
Phys. Rev. **D42** (1990), 3963-3968,
Evolution of the baryon number density during the cosmic quark-hadron phase transition.
19. T. Kajino, G. J. Mathews, and G. M. Fuller,
Astrophys. J. **364** (1990), 7-14,
Primordial nucleosynthesis of intermediate-mass elements in baryon-number
inhomogeneous big-bang models: Observational tests.
20. T. Kajino,

- Phys. Rev. Lett. **66** (1991), 125-128,
Can quark-gluon plasma formation in relativistic heavy-ion collisions constrain inhomogeneous cosmologies?
21. F. C. Barker, and T. Kajino,
Australian J. Phys. **44** (1991), 369-396,
Channel contributions to low energy $^{12}\text{C}(^4\text{He}, \gamma)^{16}\text{O}$ cross section in massive stars.
 22. T. Kajino,
Nucl. Instr. Meth. **B56** (1991), 564-567,
Primordial nucleosynthesis and radioactive beams.
 23. Y. Yamamoto, T. Kajino and K.-I. Kubo,
Phys. Rev. **C47** (1993), 846-859,
Theoretical studies of the $^7\text{Li}(^3\text{H}, n)^9\text{Be}$ reaction and primordial nucleosynthesis of ^9Be .
 24. K. Jedamzik, G.M. Fuller, G.J. Mathews and T. Kajino,
Astrophys. J. **422** (1994), 423-429,
Enhanced heavy-element production in baryon-inhomogeneous big-bang models.
 25. Y. Yoshii, G. J. Mathews and T. Kajino,
Astrophys. J. **447** (1995), 184-190,
Be and B abundances of metal-deficient halo stars and accretion of interstellar matter.
 26. G. J. Mathews, T. Kajino and M. Orito,
Astrophys. J. **456** (1996), 98-105,
Inhomogeneous primordial nucleosynthesis and new abundance constraints on Ω_{B} .
 27. Y. Yoshii, T. Kajino and S. G. Ryan,
Astrophys. J. **485** (1997), 605-610,
Evolution of the light elements and the cosmic ray flux in the Galaxy.
 28. M. Orito, T. Kajino, R. N. Boyd and G. J. Mathews,
Astrophys. J. **488** (1997), 515-523,
Geometrical effects of baryon density inhomogeneities on primordial Nucleosynthesis.
 29. T.-K. Suzuki, Y. Yoshii and T. Kajino,
Astrophys. J. **522** (1999), L125-L128,
Evolution of beryllium and boron in the inhomogeneous early Galaxy.
 30. A. Tokuhsa and T. Kajino,
Astrophys. J. **525** (1999), L117-L120,
Meson synchrotron emission from central engines of gamma-ray bursts with strong magnetic fields.
 31. K. Otsuki, H. Tagoshi, T. Kajino and S. Wanajo,
Astrophys. J. **533** (2000), 424-439,

The general relativistic effects on neutrino-driven winds from young, hot neutron stars and the r-process nucleosynthesis.

32. M. Famiano, J. Vandegriff, R. N. Boyd, T. Kajino, and P. Osmer, *Astrophys. J. Lett.* **547** (2001), L21-L24, Production of ^2H and ^3He from Interactions between Jets and Clouds.
33. S. Wanajo, T. Kajino, and G. J. Mathews, and K. Otsuki, *Astrophys. J.* **554** (2001), 578-586, The r-process in neutrino-driven winds from nascent compact neutron stars of core-collapse supernovae.
34. K. Sumiyoshi, M. Terasawa, G. J. Mathews, T. Kajino, S. Yamada, and H. Suzuki, *Astrophys. J.* **562** (2001), 880-886, R-process in Prompt Supernova Explosions revisited.
35. M. Terasawa, K. Sumiyoshi, T. Kajino, I. Tanihata, and G. J. Mathews, *Astrophys. J.* **562** (2001), 470-479, New Nuclear Reaction Flow towards R-Process Nucleosynthesis in Supernovae: A Critical Role of the Light Neutron-Rich Nuclei.
36. N. Yahiro, G. J. Mathews, K. Ichiki, T. Kajino, and M. Orito, *Phys. Rev.* **D65** (2002), 063502, Constraints on Cosmic Quintessence and quintessential inflation.
37. M. Orito, T. Kajino, G. J. Mathews, and Y. Wang, *Phys. Rev.* **D65** (2002), 123504, Constraints on Neutrino Degeneracy from the Cosmic Microwave Background and Primordial Nucleosynthesis.
38. K. Ichiki, M. Yahiro, T. Kajino, M. Orito, and G. J. Mathews, *Phys. Rev.* **D66** (2002), 043521, Observational constraints on dark radiation in brane cosmology.
39. M. A. Famiano, R. N. Boyd, and T. Kajino, *Astrophys. J.* **576** (2002), 89-100, Light element nucleosynthesis from jet interactions in active galactic nuclei.
40. M. Terasawa, K. Sumiyoshi, S. Yamada, H. Suzuki, and T. Kajino, *Astrophys. J. Lett.* **578** (2002), 137-140, R-process nucleosynthesis in neutrino-driven winds from a typical neutron star with $M = 1.4M_{\text{solar}}$.
41. K. Sumiyoshi, H. Utsunomiya, S. Goko and T. Kajino, *Nucl. Phys.* **A709** (2002), 467-486, Astrophysical reaction rate for $\alpha(\alpha n, \gamma)^9\text{Be}$ by photodisintegration.
42. K. Otsuki, G. J. Mathews, and T. Kajino,

New Astronomy **8** (8) (2003), 767-776,
R-Process Abundance Universality and Actinide Cosmochronology.

43. K. Ichiki, P. M. Garnavich, T. Kajino, G. J. Mathews, and M. Yahiro,
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44. K. Ichiki, M. Orito, and T. Kajino,
Astroparticle Physics **20** (2004), 499-505,
Primordial Black-Hole Formation and New Class of Cosmic Energy.
45. Takashi Yoshida, Mariko Terasawa, Toshitaka Kajino, and Kohsuke Sumiyoshi,
Astrophys. J. **600** (2004), 204-213,
Nucleosynthesis of Light Elements and Heavy r-Process Elements through the v-Process in Supernova Explosions.
46. N. Iwamoto, T. Kajino, G. J. Mathews, M. Fujimoto and W. Aoki,
Astrophys. J. **602** (2004), 377-387,
Flash-driven convective mixing in low-mass, metal-deficient asymptotic giant branch stars: A new paradigm for Lithium and a possible s-process enrichment.
47. M. Terasawa, K.-H. Langanke, T. Kajino, and G. J. Mathews,
Astrophys. J. **608** (2004), 470-479,
Neutrino effects before, during and after the freezeout of the r-process.
48. T. Hayakawa, N. Iwamoto, T. Shizuma, T. Kajino, H. Umeda, and K. Nomoto,
Phys. Rev. Lett. **93** (2004), 161102,
Evidence for nucleosynthesis in supernova γ -process: Universal scaling on p-nuclei.
49. G. J. Mathews, D. J. H. Chung, K. Ichiki, T. Kajino, and M. Orito,
Phys. Rev. **D70** (2004), 083505,
Constraints on resonant particle production during inflation from the matter and CMB power spectra.
50. G. J. Mathews, T. Kajino, and T. Shima,
Phys. Rev. **D71** (2005), 021302 (R),
Big Bang Nucleosynthesis with a New Neutron Lifetime.
51. D. G. Yamazaki, K. Ichiki, and T. Kajino,
Astrophys. J. Lett. **625** (2005), L1-L4,
Constraining Primordial Magnetic Field from CMB Anisotropies at Higher Multipoles
52. Takashi Yoshida, Toshitaka Kajino, and Dieter Hartmann,
Phys. Rev. Lett. **94** (2005), 231101,
Constraining the Spectrum of Supernova Neutrinos from v-Process Induced Light Element Synthesis.

53. T. Hayakawa, T. Shizuma, T. Kajino, S. Chiba, N. Shinohara, T. Nakagawa, and T. Arima, *Astrophys. J.* **628** (2005), 533-540,
New s-process path and its implication to ^{187}Re - ^{187}Os nucleo-cosmochronometer.
54. T. Sasaqui, T. Kajino, and A. B. Balantekin, *Astrophys. J.* **634** (2005), 534-541,
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56. T. Nakagawa, S. Chiba, T. Kajino, and T. Hayakawa, *Atomic Data and Nucl. Data Tables* **91** (2005), 77-186,
Maxwellian-averaged neutron-induced reaction cross sections and astrophysical reaction rates, calculated from Microscopic Neutron Cross Section Library JENDL-3.3.
57. Takashi Yoshida, Toshitaka Kajino, Hidekazu Yokomakura, Kei-ichi Kimura, Akira Takamura, and Dieter Hartmann, *Phys. Rev. Lett.* **96** (2006), 091101,
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59. Juan F. Lara, Toshitaka Kajino, and Grant J. Mathews, *Phys. Rev.* **D73** (2006), 083501,
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60. T. Sasaqui, K. Otsuki, T. Kajino, and G. J. Mathews, *Astrophys. J.* **645** (2006), 1345-1351,
Light-Element Reaction Flow and the Conditions for r-Process Nucleosynthesis.
61. Takashi Yoshida, Toshitaka Kajino, Hidekazu Yokomakura, Kei-ichi Kimura, Akira Takamura, and Dieter Hartmann, *Astrophys. J.* **649** (2006), 319-331
Neutrino Oscillation Effect on Supernova Light Element Synthesis.
62. D. Yamazaki, K. Ichiki, T. Kajino, and G. J. Mathews, *Astrophys. J.* **646** (2006), 719-729,
Constraints on the Evolution of the Primordial Magnetic Field from the Small Scale CMB Angular Anisotropies.
63. Motohiko Kusakabe, Toshitaka Kajino, and Grant J. Mathews, *Phys. Rev.* **D74** (2006), 023526,
 ^6Li Production by the Radiative Decay of Long-Lived Particles.

64. T. Hayakawa, N. Iwamoto, T. Kajino, T. Shizuma, H. Umeda, and K.-I. Nomoto, *Astrophys. J. Lett.* **648** (2006), L47-L50,
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65. T. Suzuki, S. Chiba, T. Yoshida, T. Kajino, and T. Otsuka, *Phys. Rev.* **C74** (2006), 034307,
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66. T. Hayakawa, S. Miyamoto, Y. Hayashi, K. Kawase, K. Horikawa, S. Chiba, K. Nakanishi, H. Hashimoto, T. Ohta, M. Kando, T. Mochizuki, T. Kajino, and M. Fujiwara, *Phys. Rev.* **C74** (2006), 065802,
Half-life of ^{184}Re populated by the (γ, n) reaction from laser Compton scattering gamma rays at the electron storage ring NewSUBARU.
67. Motohiko Kusakabe, Toshitaka Kajino, Takashi Yoshida, and Grant J. Mathews, *Phys. Rev.* **D76** (2007), 121302 (Rapid Communication),
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70. M. Kusakabe, T. Kajino, R. N. Boyd, T. Yoshida, and G. J. Mathews, *Astrophys. J.* **680** (2008), 846-857,
The X^- Solution to the ^6Li and of ^7Li Big-Bang Nucleosynthesis Problems.
71. T. Hayakawa, N. Iwamoto, T. Kajino, T. Shizuma, H. Umeda, and K.-I. Nomoto, *Astrophys. J.* **685** (2008), 1089-1102,
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72. Kazuhiko Kojima, Kiyotomo Ichiki, Dai G. Yamazaki, Toshitaka Kajino, and Grant J. Mathews, *Phys. Rev.* **D78** (2008), 045010,
Neutrino mass effects on vector and tensor CMB anisotropies in the presence of primordial magnetic field.
73. Takashi Yoshida, Toshio Suzuki, Satoshi Chiba, Toshitaka Kajino, Hidekazu Yokomakura, Keiichi Kimura, Akira Takamura, and Dieter H. Hartmann *Astrophys. J.* **686** (2008), 448,

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76. M. A. Famiano, R. N. Boyd, T. Kajino, K. Otsuki, M. Terasawa and G. J. Mathews, J. Phys. **G35** (2008), 0252203, Shell model calculation of excited β -decays for r-process nucleosynthesis.
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82. Kazuhiko Kojima, Toshitaka Kajino, and Grant J. Mathews, JCAP **02** (2010), 018, Growth of Cosmological Perturbation by Extra Anisotropic Stress.
83. Dai. G. Yamazaki, Kiyotomo Ichiki, Toshitaka Kajino, and Grant J. Mathews,

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New constraint on the Primordial Magnetic Field.
84. Shio Kawagoe, Takashi Yoshida, Toshitaka Kajino, Hideyuki Suzuki,
Kohsuke Sumiyoshi, and Shoichi Yamada,
Phys. Rev. **D81** (2010), 123014,
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85. Dai. G. Yamazaki, Kiyotomo Ichiki, Toshitaka Kajino, and Grant J. Mathews,
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Constraint on the Neutrino Mass and Primordial Magnetic Field from Ω_8 .
86. Motohiko Kusakabe, Toshitaka Kajino, Takashi Yoshida, and Grant J. Mathews,
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Phys. Rev. **C81** (2010), 028501,
Neutrino reactions on ^{12}C by the quasiparticle random-phase approximation.
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93. Dai. G. Yamazaki, Kiyotomo Ichiki, Toshitaka Kajino, and Grant J. Mathews,
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Evaluation of Electron Capture Reaction Rates in Ni Isotopes in Stellar
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