

# List of Publications by Naoki Itoh

## Original Papers Published in Refereed Journals

- [1] “Hydrostatic Instability in Very High Temperature Stars”  
N. Itoh:  
Progress of Theoretical Physics **41**, 1211-1216 (1969).
- [2] “Superconducting State of Neutron Stars”  
N. Itoh:  
Progress of Theoretical Physics **42**, 1478-1479 (1969).
- [3] “Hydrostatic Equilibrium of Hypothetical Quark Stars”  
N. Itoh:  
Progress of Theoretical Physics **44**, 291-292 (1970).
- [4] “Neutrino Energy Loss in Neutron Star Matter”  
N. Itoh and T. Tsuneto:  
Progress of Theoretical Physics **48**, 1849-1859 (1972).
- [5] “Effective Mass of  $^3\text{He}$  in Liquid  $^4\text{He}$ ”  
V.R. Pandharipande and N. Itoh:  
Physical Review **A 8**, 2564-2566 (1973).
- [6] “Lifetime Effect on the Superfluidity in Neutron Stars”  
N. Itoh and M.A. Alpar:  
Journal of Physics **A 7**, 1970-1976 (1974).
- [7] “Positively Charged Isospin Wave Softening and Proton Lattice in Neutron Stars”  
P.W. Anderson, N. Itoh, M.A. Alpar, E. Tosatti and R.G. Palmer:  
Nuovo Cimento Letters **12**, 165-170 (1975).
- [8] “Pulsar Glitches and Restlessness as a Hard Superfluidity Phenomenon”  
P.W. Anderson and N. Itoh:  
Nature **256**, 25-27 (1975).
- [9] “Electrical Conductivity and Emissivity of the Pulsar Surface”  
N. Itoh:  
Monthly Notices of Royal Astronomical Society **173**, Short Communication 1-3  
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- [10] “Ion-Ion Correlation Effect on Freedman’s Neutrino Opacity”  
N. Itoh:  
Progress of Theoretical Physics **54**, 1580-1581 (1975).

- [11] “Transport Properties of Dense Matter”  
E. Flowers and N. Itoh:  
Astrophysical Journal **206**, 218-242 (1976).
- [12] “A Statistical Theory of Nuclear Neutrino Capture”  
N. Itoh, Y. Kohyama and A. Fujii:  
Nuclear Physics **A 287**, 501-505 (1977).
- [13] “Lattice Model for the Screening Potential of the Classical One-Component Plasma”  
N. Itoh and S. Ichimaru:  
Physical Review **A 16**, 2178-2180 (1977).
- [14] “Enhancement of Thermonuclear Reaction Rate Due to Strong Screening”  
N. Itoh, H. Totsuji and S. Ichimaru:  
Astrophysical Journal **218**, 477-483 (1977).
- [15] “Lattice Model for the Two-Dimensional Electron Liquid”  
N. Itoh, S. Ichimaru and S. Nagano:  
Physical Review **B 17**, 2862-2865 (1978).
- [16] “Statistical Theory of Nuclear Neutrino Capture II. Inclusion of First-Forbidden Transitions”  
N. Itoh and Y. Kohyama:  
Nuclear Physics **A 306**, 527-535 (1978).
- [17] “Transport Properties of Dense Matter. II.”  
E. Flowers and N. Itoh:  
Astrophysical Journal **230**, 847-858 (1979).
- [18] “Addendum to “Lattice Model for the Screening Potential of the Classical One-Component Plasma””  
N. Itoh and S. Ichimaru:  
Physical Review **A 19**, 2476-2478 (1979).
- [19] “Lifetime of Surface-State Electrons on Liquid Helium: Relation with the Chemical Potential of the Electron Liquid”  
S. Nagano, S. Ichimaru, H. Totsuji and N. Itoh:  
Physical Review **B 19**, 2449-2456 (1979).
- [20] “Enhancement of Thermonuclear Reaction Rate Due to Strong Screening. II. Ionic Mixtures”  
N. Itoh, H. Totsuji, S. Ichimaru and H.E. DeWitt:  
Astrophysical Journal **234**, 1079-1084 (1979).

- [21] “Correlational Properties of Two-Dimensional Electron Systems in the Surface State on Liquid Helium”  
S. Nagano, S. Ichimaru and N. Itoh:  
Surface Science **98**, 22-29 (1980).
- [22] “Harmonic-Lattice Model for the Internal Energy of the Classical One-Component Plasma Fluid near the Crystallization Point”  
N. Itoh and S. Ichimaru:  
Physical Review **A 22**, 1318-1320 (1980).
- [23] “Harmonic Lattice Model for the Internal Energy of the Classical Two-Dimensional One-Component Plasma Fluid”  
N. Itoh and S. Ichimaru:  
Physical Review **B 22**, 1459-1460 (1980).
- [24] “Statistical Theory for  $^8\text{B}$  Solar Neutrino Captures by Newly Proposed Targets”  
N. Itoh and Y. Kohyama:  
Astrophysical Journal **246**, 989-993 (1981).
- [25] “Transport Properties of Dense Matter. III. Analytic Formulae for Thermal Conductivity”  
E. Flowers and N. Itoh:  
Astrophysical Journal **250**, 750-752 (1981).
- [26] “Physics of Dense Plasmas and the Enhancement of Thermonuclear Reaction Rates Due to Strong Screening”  
N. Itoh:  
Progress of Theoretical Physics Supplement **70**, 132-141 (1981).
- [27] “Statistical Calculation of the  $^8\text{B}$  Solar Neutrino Capture Cross Sections for  $^{97}\text{Mo}$  and  $^{98}\text{Mo}$ ”  
N. Itoh and Y. Kohyama:  
Progress of Theoretical Physics **68**, 677-679 (1982).
- [28] “Plasmon Linewidth and Frequency Shift in Dense Matter”  
N. Itoh, Y. Kohyama, S. Ichimaru and M. Hasegawa:  
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- [29] “Prediction of Pulsar Glitch Frequency Based on the Hard Superfluid Model”  
N. Itoh:  
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- [30] “Amorphous Glassy Plasma in Dense Stellar Matter”  
S. Ichimaru, H. Iyetomi, S. Mitaka and N. Itoh:  
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- [31] “Electrical and Thermal Conductivities of Dense Matter in the Liquid Metal Phase. I. High-Temperature Results”  
N. Itoh, S. Mitake, H. Iyetomi and S. Ichimaru:  
 Astrophysical Journal **273**, 774-782 (1983).
- [32] “Neutrino-Pair Bremsstrahlung in Dense Stars. I. Liquid Metal Case”  
N. Itoh and Y. Kohyama:  
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- [33] “Electrical and Thermal Conductivities of Dense Matter in the Liquid Metal Phase. II. Low-Temperature Quantum Corrections”  
 S. Mitake, S. Ichimaru and N. Itoh:  
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- [34] “Neutrino-Pair Bremsstrahlung in Dense Stars. II. Crystalline Lattice Case”  
N. Itoh, N. Matsumoto, M. Seki and Y. Kohyama:  
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- [35] “Neutrino-Pair Bremsstrahlung in Dense Stars. III. Low-Temperature Quantum Corrections in the Liquid Metal Phase”  
N. Itoh, Y. Kohyama, N. Matsumoto and M. Seki:  
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- [36] “Neutrino-Pair Bremsstrahlung in Dense Stars. IV. Phonon Contributions in the Crystalline Lattice Phase”  
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- [37] “Electrical and Thermal Conductivities of Dense Matter in the Crystalline Lattice Phase”  
N. Itoh, Y. Kohyama, N. Matsumoto and M. Seki:  
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- [38] “Relativistic Free-Free Opacity for a High-Temperature Stellar Plasma”  
N. Itoh, M. Nakagawa and Y. Kohyama:  
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- [39] “Neutrino Energy Loss in Stellar Interiors”  
 H. Munakata, Y. Kohyama and N. Itoh:  
 Astrophysical Journal **296**, 197-203 (1985).
- [40] “Neutrino Energy Loss in Stellar Interiors. II. Axial-Vector Contribution to the Plasma Neutrino Energy Loss Rate”  
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- [41] “Relativistic Free-Free Gaunt Factor of the Dense High-Temperature Stellar Plasma”  
M. Nakagawa, Y. Kohyama and N. Itoh:  
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- [42] “Neutrino-Pair Bremsstrahlung in Dense Stars. V. Partially Degenerate Electrons”  
H. Munakata, Y. Kohyama and N. Itoh:  
Astrophysical Journal **316**, 708-715 (1987).
- [43] “Viscosity of Dense Matter”  
N. Itoh, Y. Kohyama and H. Takeuchi:  
Astrophysical Journal **317**, 733-736 (1987).
- [44] “Axion Bremsstrahlung in Dense Stars”  
M. Nakagawa, Y. Kohyama and N. Itoh:  
Astrophysical Journal **322**, 291-295 (1987).
- [45] “Axion Bremsstrahlung in Dense Stars. II. Phonon Contributions”  
M. Nakagawa, T. Adachi, Y. Kohyama and N. Itoh:  
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- [46] “Neutrino Emission Processes in White Dwarfs and Neutron Stars”  
N. Itoh:  
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- [47] “Neutrino Energy Loss in Stellar Interiors. III. Pair, Photo-, Plasma, and Bremsstrahlung Processes”  
N. Itoh, T. Adachi, M. Nakagawa, Y. Kohyama and H. Munakata:  
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- [48] “Pulsar Magnetic Moment Decay Due to Radiation Damping and the Pulsar in SN 1987A”  
N. Itoh:  
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- [49] “Relativistic Free-Free Gaunt Factor of the Dense High-Temperature Stellar Plasma. II. Carbon and Oxygen Plasmas”  
N. Itoh, K. Kojo and M. Nakagawa:  
Astrophysical Journal Supplement Series **74**, 291-314 (1990).
- [50] “Enhancement of Thermonuclear Reaction Rates in Extremely Dense Stellar Plasma”  
N. Itoh, F. Kuwashima and H. Munakata:  
Astrophysical Journal **362**, 620-623 (1990).

- [51] “Radiation Reaction Due to Magnetic Dipole Radiation”  
N. Itoh:  
 Physical Review **A 43**, 1002-1004 (1991).
- [52] “Magnetic-Dipole Radiation Reaction and Constant Regeneration of Pulsar Magnetic Fields”  
N. Itoh:  
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- [53] “The Rosseland Mean Free-Free Gaunt Factor of the Dense High-Temperature Stellar Plasma”  
N. Itoh, F. Kuwashima, K. Ichihashi and H. Mutoh:  
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- [54] “Relativistic Free-Free Gaunt Factors for High-Temperature Stellar Plasmas”  
N. Itoh:  
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- [55] “Electron Conduction Opacity for Dense Stellar Plasmas”  
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- [56] “The Nonexponential Evolution of Pulsar Magnetic Fields”  
 S. Wakatsuki, A. Hikita, N. Sato and N. Itoh:  
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- [57] “Radiation Reaction Electric Field in a Current-Carrying Rotating-Ring Conductor Due to Magnetic-Dipole Radiation Reaction”  
N. Itoh:  
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- [58] “Neutrino Energy Loss in Stellar Interiors. IV. Plasma Neutrino Process for Strongly Degenerate Electrons”  
N. Itoh, H. Mutoh, A. Hikita and Y. Kohyama:  
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- [59] “Electrical and Thermal Conductivities of Dense Matter in the Crystalline Lattice Phase. II. Impurity Scattering”  
N. Itoh and Y. Kohyama:  
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- [60] “Neutrino Energy Loss in Stellar Interiors. V. Recombination Neutrino Process”  
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N. Itoh, H. Hayashi and Y. Kohyama:  
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- [62] “Neutrino Energy Loss in Stellar Interiors. VI. Axial Vector Contribution to the Plasma Neutrino Energy-Loss Rate for Strongly Degenerate Electrons”  
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- [63] “The Nonexponential Evolution of Pulsar Magnetic Fields. II. Velocity-Magnetic Field Correlation”  
N. Itoh and K. Hiraki:  
 Astrophysical Journal **435**, 784-790 (1994).
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N. Itoh, A. Nishikawa and Y. Kohyama:  
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- [69] “Contributions of the Plasmons to the Energy Density and Pressure in the Early Universe”  
N. Itoh, A. Nishikawa, Y. Kohyama and S. Nozawa:  
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N. Itoh, A. Nishikawa, S. Nozawa and Y. Kohyama:  
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 M. Nakagawa, Y. Kohyama and N. Itoh:  
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- [73] “Relativistic Free-Free Gaunt Factor of the Dense High-Temperature Stellar Plasma. II. Carbon and Oxygen Plasmas”  
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- [74] “Relativistic Corrections to the Sunyaev-Zeldovich Effect for Cluster of Galaxies”  
N. Itoh, Y. Kohyama and S. Nozawa:  
 Astrophysical Journal **502**, 7-15 (1998).
- [75] “Relativistic Thermal Bremsstrahlung Gaunt Factor for the Intracluster Plasma”  
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 Astrophysical Journal **507**, 530-557 (1998).
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 Astrophysical Journal **508**, 17-24 (1998).
- [77] “High-Temperature Plasmas in Clusters of Galaxies”  
N. Itoh, Y. Kohyama and S. Nozawa:  
 Journal of Physics: Condensed Matter **10**, 11273-11283 (1998).
- [78] “Relativistic Corrections to the Sunyaev-Zeldovich Effect for Clusters of Galaxies. III. Polarization Effect”  
N. Itoh, S. Nozawa and Y. Kohyama:  
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S. Nozawa, N. Itoh, Y. Kawana and Y. Kohyama:  
Astrophysical Journal **536**, 31-35 (2000).
- [80] “Relativistic Thermal Bremsstrahlung Gaunt Factor for the Intracluster Plasma. II. Analytic Fitting Formulae”  
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N. Itoh, Y. Kawana, S. Nozawa and Y. Kohyama:  
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N. Itoh, Y. Kawana and S. Nozawa:  
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- [84] “The r-Process in the Neutrino Winds of Core-Collapse Supernovae and U-Th Cosmochronology”  
S. Wanajo, N. Itoh, Y. Ishimaru, S. Nozawa and T.C. Beers:  
Astrophysical Journal **577**, 853-865 (2002).
- [85] “Screening Corrections to the Electron Capture Rates in Dense Stars by the Relativistically Degenerate Electron Liquid”  
N. Itoh, N. Tomizawa, M. Tamamura, S. Wanajo and S. Nozawa:  
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M. Tamamura, S. Wanajo, N. Itoh, K. Nomoto, Y. Ishimaru and S. Nozawa:  
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- [89] “The r-Process in Supernova Explosions from the Collapse of O-Ne-Mg Cores”  
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Astrophysical Journal **593**, 968-979 (2003).
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N. Itoh and S. Nozawa:  
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S. Wanajo, S. Goriely, M. Samyn and N. Itoh:  
Astrophysical Journal **606**, 1057-1069 (2004).
- [92] “Ion-Ion Correlation Effect on the Neutrino-Nucleus Scattering in Supernova Cores”  
N. Itoh, R. Asahara, N. Tomizawa, S. Wanajo and S. Nozawa:  
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- [93] “The r-process in Prompt Explosions from Collapsing O-Ne-Mg Cores”  
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- [94] “Production of the Light r-process Nuclei in Neutrino-Driven Winds”  
N. Tomizawa, S. Wanajo, R. Asahara, N. Itoh and S. Nozawa:  
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- [95] “The r-process in Supernovae with New Microscopic Mass Formulae”  
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- [96] “Relativistic Corrections to the Sunyaev-Zeldovich Effect for Clusters of Galaxies: Effect of the Motion of the Observer”  
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- [97] “An Improved Formula for the Relativistic Corrections to the Kinematical Sunyaev-Zeldovich Effect for Clusters of Galaxies”  
S. Nozawa, N. Itoh, Y. Suda and Y. Ohhata:  
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- [98] “Evolution of Low-Mass Population III stars”  
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Astrophysical Journal **667**, 1206-1219 (2007).
- [99] “The Second Born Corrections to the Electrical and Thermal Conductivities of Dense Matter in the Liquid Metal Phase”  
N. Itoh, S.Uchida, Y.Sakamoto, Y.Kohyama and S.Nozawa:  
Astrophysical Journal

- [100] “Analytic Fitting Formulae for Relativistic Electron-Electron Thermal Bremsstrahlung”  
S.Nozawa, K.Takahashi, Y.Kohyama and N. Itoh:  
Astronomy and Astrophysics, submitted.

## Book Edited

- [1] “Quest for New Physical Phases under Extreme Conditions”  
N. Itoh, N.W. Aschcroft and N. Miura (eds.):  
Journal of Physics: Condensed Matter: Special Issue 11123-11615 (1998).

## Conference Proceedings (Selected)

- [1] “Dielectric Response Function, Equation of State and Transport Coefficients of Strongly Coupled Plasmas”  
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*Proceedings of International Conference on Plasma Physics* (Nagoya) **1**, 60 (1980).
  
- [2] “The Current Status of Neutron Star Cooling Theories”  
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- [4] “Cooling of Neutron Stars: Accurate Treatment of Thermal Conduction”  
N. Itoh, K. Nomoto, S. Tsuruta and T. Murai:  
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- [7] “Transport Processes and Neutrino Emission Processes in Dense Astrophysical Plasmas”  
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*Proceedings of International Conference on Strongly Coupled Plasma Physics* (F.J. Rogers and H.E. DeWitt (eds.): Plenum) 151-159 (1987).
  
- [8] “Neutron Star Cooling: Critical Test of Dense Matter Physics”  
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- [9] “Pulsar Magnetic Moment Decay Due to Radiation Damping: A Prediction for the Expected Pulsar in SN1987A”  
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*Proceeding of IAU Colloquium No.108 “Atmospheric Diagnostics of Stellar Evolution: Chemical Peculiarity, Mass Loss, and Explosion”* (K. Nomoto (ed.): Springer) 434-435 (1988).
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- [12] “Pulsar Magnetic Moment Decay Due to Radiation Damping: A Prediction for the Expected Pulsar in 1987 A”  
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