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Curriculum Vitae

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Date of birth : 24 January, 1953
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History of Education

April 1971 - March 1975	Undergraduate student in Faculty of Engineering, Osaka U.
April 1975 - March 1977	Master course student in Faculty of Engineering, Graduate School of Osaka U.
April 1997 - October 1979	Doctor course student in Faculty of Engineering, Graduate school of Osaka U.
April 1983	Doctor Degree (Engineering) "Study of energy transport in CO_2 laser produced plasma"

History of occupation

November 1979 - April 1982	Research Associate of Institute of Laser Engineering Osaka U.
May 1982 - March 1990	Research Associate of Institute of Laser Engineering, Osaka U.
April 1990 - March 1991	Guest Scientist of Max-Planck Institute for Quantumoptics (Garching, Germany)
April 1990 - February 1992	Lecturer, Institute of Laser Engineering, Osaka U.
March 1992 - March 2003	Associate Professor, Institute of Laser Engineering, Osaka U.
April 2003 - present	Professor, Institute of Laser Engineering, Osaka U.

Awards

1. KUSUMOTO Award (President Award of Osaka U.)
   Osaka University — March 1975
2. Outstanding Progress Award of ILE, Institute of Laser Engineering, Osaka U. — July 1994
3. The 7th JSPF Award for Notable Contribution to Technology
   The Japan Society of Plasma Science and Nuclear Fusion Research — November 2002
4. Outstanding Contribution Award of ILE, Laser Engineering, Osaka U. — December 2003
5. The 13th JSPF Award of the best paper
   The Japan Society of Plasma Science and Nuclear Fusion Research — November 2005

Other Activities

Divisional editor of Journal of Plasma and Fusion Research
Organizing committee member of Radiation Properties of Hot Dense Matter
etc.

List of papers (last 5 year)

1. Monochromatic X-ray Imging with Bent Crystals for Laser Fusion Research
   K. Fujita, H. Nishimura, I. Niki, J. Funakura, I. Uschmann, R. Butzbach, E. Forster, M. Nakai, M. Fukao, A. Sunahara, H. Takabe, and T. Yamanaka
   *Review of Scientific Instruments, Vol.**72**, No.1, Part II, Jan., pp.744-747 (2001)*

2. Model calculations and experiments on photoionized plasmas in relevant to laboratory astrophysics
   Y. Morita, H.Nishimura, Y. Ochi, K. Fujita, M. Fukao, M. Shimizu, T. Kawamura, H. Daido, and H. Takabe
   *J. Quant. Spectrosco. Rad. Trans. Vol/ **71**, No. 2-6, (2001) pp.519-529.*

3. Analysis of laser imploded core plasma formation by Li-like satellite lines from argon dopant
   Y. Ochi, T. Kawamura, H. Nishimura, M. Fukao, K. Fujita, H. Shirahga, H. Azechi, and T. Yamanaka
   *J. Quant. Spectrosco. Rad. Trans. Vol/ **71**, No. 2-6, (2001) pp.531-540.*

4. Radiation effects on hydrodynamic perturbation growth due to non-uniform laser irradiation
   N.Ohnishi, H. Nagatomo, H. Nishimura, H. Takabe, and T. Yamanaka
   J. Quant. Spectrosco. Rad. Trans. Vol/ 71, No. 2-6, (2001) pp.551-560.

5. Enhancement of Thermal Smoothing Effect on Laser Imprint with Soft X-ray Radiation
   N. Ohnishi, H. Nagatomo, H. Takabe, H. Nishimura, M. Nishikino, H. Shiraga and T. Yamanaka,
   *Jpn. J. Appl. Phys. **40**, No. 3A (2001), pp. 1435 - 1442.*

6. Laboratory Simulation of the Collision of Supernova 1987A with Its Circumstellar Ring Nebula
   Y.-G. Kang, H. Nishimura, H. Takabe, K. Nishihara, A. Sunahara, T. Norimatsu, K. Nagai, H. Kim, M. Nakatsuka, and H. J. Kong
   *Plasma Physics Reports, Vol. **27**, No. 10, 2001, pp. 843~ 851.*

7. Blast-wave〉sphere interaction using a laser-produced plasma: An experiment motivated by supernova 1987A
   Y. -G. Kang, K. Nishihara, H. Nishimura, H. Takabe, A. Sunahara, T. Norimatsu, K. Nagai, H. Kim, M. Nakatsuka, H. J. Kong, and N. J. Zabusky
   *Physical Review **E 64**, No.4-2, 2001, pp.047402-1 - 047402-4*

8. Implosion Experiments of Gas-filled Plastic-shell Targets with l=1 Drive Nonouniformity at The Gekko-XII glass laser
   M.Heya, H.Shiraga, A.Sunahara, M.Nakasuji, M.Nishikino, H.Honda, K.Fujita, N.Izumi, N. Miyanaga, H. Nishimura, H.Azechi, S.naruo, H.Takabe, T.Yamanaka, and K.Mima4
   *Laser and Particle Beams Vol.**19**, pp.267-284 (2001)*

9. Spectroscopic Determination of Dynamic Plasma Gradients in Implosion Cores
   I.Golovkin, R.Manchini, S.Louis, Y.Ochi, K.Fujita, H.Nishimura, H.Shiraga, N.Miyanaga, H.Azechi, R.Butzbach, I.Uschmann, E.Foerster, J.Delettrez, J.Koch, R.W.Lee, ans L. Klein
   *Phys. Rev. Lett., **88**, No.4, pp045002-1~045002-4. (2002*)

10. Progress of fast ignitor studies and Petawatt laser construction at Osaka Universitya
    Y. Kitagawa, Y. Sentoku, S. Akamatsu, M. Mori, Y. Tohyama, R. Kodama, K. A. Tanaka, H. Fujita, H. Yoshida, S. Matsuo, T. Jitsuno, T. Kawasaki, S. Sakabe, H. Nishimura, Y. Izawa, K. Mima, and T. Yamanaka
    *Phys. Plasams Vol. **9**, No. 5 pp.2202-2207 (2002).*

11. Population Kinetics on *Ka* Lines of Partially Ionized Cl Atoms

T. Kawamura, H. Nishimura, F. Koike, Y. Ochi, R. Matsui, W.Y. Miao, S. Okihara, S. Sakabe, I. Uschmann, E. Foerster, and K. Mima1

Phys. Rev. ***E 66****, No. 1, pp.016402-1~8 (2002)*

12. Fast hating scalable to laser fusion ignition

R. Kodama, H. Shiraga, K. Shigemori, Y. Toyama, S. Fujioka, H. Azechi, H. Fujita, H. Habara, T. Hall, Y. Izawa, T. Jitsuno, Y. Kitagawa, K.M.Krushelnick, K.L.Lancaster, K. Mima, K. Nagai, M. Nakai, H. Nishimura, T. Norimatsu, P.A. Norreys, S. Sakabe, K.A. Tanaka, A, Youssef, M. Zepf, and T. Yamanaka

Nature Vol. ***418****, No. 6901, pp.933-934 (2002).*

13. Temporal Evolution of Temperature and Density Profiles of a Laser Compressed Core

Y.Ochi, I.Golovkin, I.Uschmann, K.Fujita, R.Mancini, S. Louis, H.Nishimura, M.Nakai, H.Shiraga, N.Miyanaga[1], H.Azechi, R.Butzbach, E.Förster, J.Delettrez, J.Koch, R.W. Lee, and L.Klein

Rev. Sci. Instrum. ***74****, No.3, pp.1683-1687 (2003).*

14. Numerical study of Kα emission from partially ionized chlorine

T. Kawamura, T. Schlegel, H. Nishimura, F. Koike, Y.Ochi, R. Matsui, S. Okihara, S. Sakabe, T. Johzaki, H. Nagatomo, K. Mima, I. Uchmann, E. Foerster, D.H. Hoffmann

J. Quant. Spectrosco. Rad. Trans. ***81****, pp. 237-246 (2003).*

15. Kα spectroscopy to Study Energy Transport in Ultrahigh-intensity Laser Plasmas

H. Nishimura, T. Kawamura, R. Matsui, Y. Ochi, S. Okihara, S. Sakabe, F. Koike, T.Johzaki, H. Nagatomo, K. Mima, I. Uschmann, and E. Föerster

J. Quant. Spectrosco. Rad. Trans. ***81****, pp. 327-337 (2003).*

16. Ablation pressure scaling at short laser wavelength

D. Batani, H. Stabile, A. Ravasio, G. Lucchini, F. Strati, and T. Desa, J. Ullschmied, E. Krousky, J. Skala, L. Juha, B. Kralikova, M. Pfeifer, Ch. Kadlec, T. Mocek, A. Prag, H. Nishimura and Y. Ochi

Phys. Rev. ***E 68****, 067403 (2003).*

17. Shock pressure induced by 0.44 μm laser radiation on aluminum targets

D. Batani, H. Stabile, A. Ravasio, T. Desai, G. Lucchini, F. Strati, J. Ullschmied, E. Krousky, J. Skala, B. Kralikova, M. Pfeifer, C. Kadlec, T. Mocek, A. Prag, H. Nishimura, Y. Ochi, A. Kilpio, E. Shashkov, I. Stuchebrukhov, V. Vovchenko, I. Krasuyk

Laser and Particle Beams Vol. ***21*** *(4): pp.481-487 (2003).*

18. Hugoniot Data for Carbon at Megabar Pressuers

D. Batani, F. Strati, H. Stabile,1 M. Tomasini, G. Lucchini, A. Ravasio, M. Koenig, A. Benuzzi-Mounaix, H. Nishimura, Y. Ochi, J. Ullschmied, J. Skala, B. Kralikova, M. Pfeifer, Ch. Kadlec, T. Mocek, A. Prag, T. Hall, P. Milani, E. Barborini, and P. Piseri

Phys. Rev. Lett. ***92****, No. 6, 065503 (2004).*

19. Nanoporous and Low-Density Materials for Laser Produced Extreme UV Light Source

K. Nagai, H. Nishimura, T. Okuno, T. Hibino, R. Matsui, Y. Z. Tao. M. Nakai, T. Norimatsu, N. Miyanaga, K. Nishihara, and Y. Izawa

Trans. Materials Research Society of Japan 29, No.3, pp.943-946 (2004).

20. Monochromatic Imaging and Angular Distribution Measurements of Extreme Ultraviolet Light from Laser -Produced Sn and SnO_2 Plasmas

Y. Tao, F. Sohbatzadeh, H. Nishimura, R. Matsui, T. Hibino, T. Okuno, S. Fujioka, K. Nagai, T. Norimtsu,

K. Nishihara, N. Miyanaga, Y. Izawa, A. Sunahara, and T. Kawamura
Appl. Phys. Lett. 85, No.11. pp. 1919-1921 (2004).

21. X-ray Polarization Spectroscopy for Measurement of Anisotropy of Hot Electrons Generated with Ultra-intense Laser Pulse
Y. Inubushi, H. Nishimura, M. Ochiai, T. Kawamura, S. Fujioka, S. Shimizu, M. Hashida, S. Sakabe, and Y.Izawa
*Rev. Sci. Instrum. **75**, No. 10, pp.3699-3710 (2004).*

22. Temporally resolved Schwarzschild Microscope for the Characterization of Extreme Ultraviolet Emission in Laser-produced Plasmas
Y. Tao, M. Nakai, H. Nishimura, S. Fujioka, T. Okuno, T. Fujiwara, N. Ueda, N. Miyanaga, and Y. Izawa
*Rev. Sci. Instrum. **75** No. 12, pp.5173-5176 (2004).*

23. Temporally resolved x-ray penumbral imaging technique using heuristic image reconstruction procedure and wide dynamic range x-ray streak camera
S. Fujioka, H. Shiraga, H.Azechi, H. Nishimura, Y. Izawa, S. Nozaki, and Y-W. Chen
Rev. Sci. Instrum., 75, issue 10, pp.4010-4012 (2004).

24. Preparation of Low-Density Macrocellular Tin Dioxide Foam with Variable Window Size
Q. Gu, K. Nagai, T. Norimatsu, S. Fujioka, H. Nishimura, K. Nishihara, N. Miyanaga, and Y. Izawa
*Chem. Mater., **17**, pp.1115-1122(2005).*

25. EUV Emission Spectra from Excited Multiply Charged Xenon Ions Produced in Charge-Transfer Collisions.
H. Tanuma, H. Ohashi, E. Shibuya, N. Kobayashi, T. Okuno, S. Fujioka, H. Nishimura, and K. Nishihara
*Nuclear Instruments and Methods in Physics Research **B 235**, pp.331-336 (2005).*

26. Temperature-Dependent EUV Spectra of Xenon Plasmas Observed in the Compact Helical System
C. Suzuki, H. Nishimura, N. Ochiai, T. Kato, S. Okamura, R. More, K. Nishihara, M. Nakai, K. Shigemori, S. Fujioka, and H. Ogawa
*J. Plasma Fusion Res. Vol**.81**, No.7, pp.480 - 481(2005)*

27. Characterization of Extreme Ultraviolet Emission from Laser-produced Spherical Tin Plasma Generated with Multiple Laser Beams
Y. Shimada, H.Nishimura, M. nakai, K. Hashimoto, M. Yamaura, Y. Tao, K. Shigemori, T. Okuno, K. Nishihara, T. Kawamura, A. Sunahara, T. Nishikawa, A. Sasaki, K. Nagai, T. Norimatsu, S. Fujioka, S. Uchida, N. Miyanaga, Y. Izawa, C. Yamanaka
*Appl. Phys. Lett. Vol. **86**, No.5, pp.051501-1051501-3 (2005).*

28. Characterization of Extreme Ultraviolet Emission using the Fourth Harmonic of a Nd:YAG laser
M. Yamaura, S. Uchida, A. Sunahara, Y.Shimada, H. Nishimura, S. Fujioka, T. Okuno, K. Hashimto, K. Nagai, T. Norimatsu, K. Nishihara, C. Yamanaka
*Appl. Phys, Lett. Vol. **86** No.18, pp.181107-1 - 181107-3 (2005)*

29. Ion Energy Spectrum of Expanding Laser-plasma with Limited Mass
M. Murakami, Y.-G. Kang, K. Nishihara, S. Fujioka, and H. Nishimura
*Phys. Plasmas Vol. **12**, pp.062706-1 - 062706-8 (2005).*

30. Petawatt-laser Direct Heating of Uniformly Imploded Deuterated-polystyren Shell Target
Y. Kitagawa, Y. Sentoku, S. Akamatsu, W. Sakamoto, K. Tanaka, R. Kodama, H. Nishimura, Y. Inubushi, M. Nakai, T. Watari, T. Norimatsu, A. Sunahara

*Phys. Rev. **E** Vol. **71**, pp.016403-1 - 016403-5 (2005).*

31. Characterization of Density Profile of Laser-produced Sn Plasma for 13.5 nm Extreme Ultraviolet Source
Y. Tao, H. Nishimura, and S. Fujioka, A. Sunahara, M. Nakai, T. Okuno, N. Ueda, K. Nishihara, N. Miyanaga, and Y. Izawa
*Appl. Phys. Lett. Vol. **86**, pp. 201501- 1 - 201501-3 (2005)*

32. Study of Fast Electron Transport in Hot Dense Matter Using X-ray Spectroscopy
H. Nishimura, Y. Inubushi, M. Ochiai, T. Kai, T. Kawamura[1], S. Fujioka, M. Hashida[2], S.Simizu[2], S. Sakabe[2], R. Kodama, K.A.Tanaka, S. Kato[3], F. Koike[4], S. Nakazaki[5], H. Nagatomo, T. Johzaki, and K. Mima,
*Plasma Phys. Control. Fusion **47**, B823-B831(2005)*

33. EUV and particle generations from laser-irradiated solid- and low-density targets",
H. Nishimura, S. Fujioka, T. Okuno, Y. Tao, N. Ueda, T. Ando, T. Aota, Y. Yasuda, S. Uchida, Y. Shimada, M. Yamaura, K. Hashimoto[1], Q. Gu, K. Nagai, Y. Norimatsu, H. Furukawa, Y. G. Kang,, A. Sunahara, K. Gamada, M. Murakami, K. Nishihara, N. Miyanaga, Y. Izawa, and K. Mima
Proceeding of Inertial Fusion Science and Applications, Biarritz (France) Sep. 5-9 (2005).

34 Opacity Effect on Extreme Ultraviolet Radiation from Laser-Produced Tin Plasmas
S, Fujioka, H. Nishimura, K. Nishihara, A. Sasaki, A. Sunahara, T. Okuno, N. Ueda, T. Ando, Y. Tao, Y. Shimada, K. Hashimoto, M. Yamaura, K. Shigemori, M. Nakai, K. Nagai, T. Norimatsu, T. Nishikawa, N. Miyanaga, Y. Izawa, and K. Mima1
*Phys. Rev. Lett., **95** 235004 (2005)*

35. Absolute calibration of extreme ultraviolet optical components with an x-ray-induced fluorescence source"
N. Ueda, H. Nishimura, S. Fujioka, N. Miyanaga, Y. Izawa, J. Uegaki, K. Shimizu, and T. Yamada
Rev. Sci. Instrum. 76 No.11, pp.113109-1~4 (2005)

36. Dynamic imaging of 13.5 nm extreme ultraviolet emission form laser-produced Sn plasmas"
Y. Tao, H. Nishimura, T. Okuni, S. Fujioka, N. Ueda, M. Nakai, K. Nagai, T. Norimatsu, N. Miyanaga, K. Nishihara, and Y. Izawa
Appl. Phys. Lett. 87, No.24, PP.241502-1~3 (2005)

37. Properties of ion debris emitted from laser-produced mass-limited thin plasmas for extreme ultraviolet light source applications"
S. Fujioka, H. Nishimura, K. Nishihara, M. Murakami, Y.G. Kang, Q. Gu, K. Nagai, T. Norimatsu, N. Miyanaga, Y. Izawa, and K. Mima
Appl. Phys. Lett. 87, No.24, PP.241503-1~3 (2005)

38. Spectroscopic studies on impurity transport of core and edge plasmas in LHD
S. Morita, M. Goto, S. Muto, R. Katai, H. Yamazaki, H. Nozato, A. Iwamae, M. Atake, T. Fujimoto, A. Sakae, H. Nishimura, I. Sakurai, C. Mmatsuomoto, A. Furuzawa, Y. Tawara, M. Aaramaki, Y. Okumura, K. Sasaki, X. Gong, J. Li, and B. Wan
J. of Plasma Science and Technology, Vol.8, No.1 pp.55-60 (2006).

39. X-ray line polarization spectroscopy to study hot electron transport in ultra-short laser produced plasma
Y. Inubushi, H. Nishimura, M. Ochiai, S. Fujioka, T. Johzaki, K. Mima, T. Kawamura, S. Nakazaki, T. Kai, S. Sakabe, and Y. Izawa
*J. Quantitative Spectroscopy and Radiation Transfer **99**, 305-313 (2006)*

40. Hugoniot data of plastic foams obtained from laser-driven shocks
R. Dezulian, F. Canova, S. Barbanotti, F. Orsenigo, R. Redaelli, T. Vinci, G. Lucchini, D. Batani, B. Rus, J. Polan, M. Kozlová, M. Stupka, A. R. Praeg, P. Homer, T. Havlicek, M. Soukup, E. Krousky, J. Skala, R. Dudzak, and M. Pfeifer, H. Nishimura, K. Nagai, F. Ito, and T. Norimatsu, A. Kilpio, E. Shashkov, I. Stuchebrukhov, V. Vovchenko, V. Chernomyrdin, and I. Krasuyk
*Physical Review **E 73**, 047401 (2006)*

41. Angular distribution control of extreme ultraviolet radiation from laser-produced plasma by manipulating the nanostructure of low-density SnO2 targets
K, Nagai, Q, Gu, Z. Gu, T. Okuno, S. Fujioka, H. Nishimura, Y. Tao, Y. Yasuda, M. Nakai, T. Norimatsu, Y. Shimada, M. Yamaura, H. Yoshida, M. Nakatsuka, N. Miyanaga, K Nishihara, and Y.Izawa,
Appl. Phys. Lett., vol. 88, No. 9, p. 094102, (2006).

42. Electrochemical Fabrication of Low Density Metal Foam with mono-dispersed-sized micro- and submicro-meter pore
Y. Yasuda, Q. Gu, K. Nagai, M. Nakai, T. Norimatsu, S. Fujioka, H. Nishimura, and M. Nakatsuka
Fusion Sci. Technol., vol. 49, No. 4, p. 691-694, (2006).

43. Conversion efficiency of extreme ultraviolet radiation in laser produced plasmas
M. Murakami, S. Fujioka, H. Nishimura, T. Ando, Nobuyoshi Ueda, Y. Shimada and M.Yamaura
Physics of Plasmas, Vol. 13, No. 3, p. 033107, (2006).

44. Low-density tin targets for efficient extreme ultraviolet light emission from laser-produced plasmas
T. Okuno, S. Fujioka, H. Nishimura, Y. Tao, K. Nagai, Q. Gu, N. Ueda, T. Ando, K. Nishihara, T. Norimatsu. N. Miyanaga, Y. Izawa, and K. Mima,
Appl. Phys. Lett. vol. 88, p.161501 (2006).

45. Spectroscopic study of debris mitigation with minimum-mass Sn laser-plasma for extreme ultraviolet lithography
S. Namba, S. Fujioka, H. Nishimura, Y, Yasuda, K. Nagai,, N. Miyanaga, Y. Izawa, K. Mima, and K. Takiyama
*Appl. Phys. Lett. vol. **88**, p.171503 (2006).*