

---

**Books, Editor of Proceedings**

1. Nuclear Physics (in Japanese),  
S. Kumano,  
KEK Physics Series, Volume 2, Kyoritsu Shuppan Co., Ltd., June 10, 2015.
2. Proceedings of the 8th International Conference on Quarks and Nuclear Physics,  
November 13-17, 2018, edited by A. Dote, Y. Goto, A. Hosaka, S. Kumano, A. Monnai,  
O. Morimatsu, S. N. Nakamura, M. Naruki, H. Noumi, S. Sawada,  
JPS Conference Proceedings 26, November 8, 2019.
3. Proceedings of the 14th International Conference on Meson-Nucleon Physics  
and the Structure of the Nucleon, July 25-30, 2016,  
edited by Y. Goto, A. Hosaka, S. Kumano, M. Niyama, H. Ohnishi, T. Sato, S. Yokkaichi,  
JPS Conf. Proc. 13 (2017), February 16, 2017.
4. High Energy Spin Physics, Proceedings of Circum-Pan-Pacific RIKEN Symposium,  
Wako, Japan, November 3-6, 1999,  
S. Kumano, T. A. Shibata, Y. Watanabe, K. Yazaki,  
RIKEN Rev. 28 (2000) 1-153.

---

**Journal Publications**

1. Equation-of-motion and Lorentz-invariance relations for tensor-polarized parton  
distribution functions of spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
Phys. Lett. B 826 (2022) 136908, 1-5.
2. Report on future nuclear physics in Japan (in Japanese), 2021 version,  
T. Nagae *et al.* (S. Kumano on Chap.7 Physics of Nucleon Structure),  
Genshikaku Kenkyu 66, Suppl.2 (2021) 1-316.
3. Twist-2 relation and sum rule for tensor-polarized parton distribution functions  
of spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
J. High Energy Phys. 09 (2021) 141.
4. On the physics potential to study the gluon content of proton and deuteron  
at NICA SPD,  
A. Arbuzov, A. Bacchetta, M. Butenschoen, F.G. Celiberto, U. D'Alesio, M. Deka, I.  
Denisenko, M. G. Echevarria, A. Efremov, N. Ya. Ivanov, A. Guskov, A. Karpishkov, Ya.  
Klopot, B. A. Kniesl, A. Kotzinian, S. Kumano, J.P. Lansberg, Keh-Fei Liu, F. Murgia,  
M. Nefedov, B. Parsamyan, C. Pisano, M. Radici, A. Rymbekova, V. Saleev, A. Shipilova,  
Qin-Tao Song, O. Teryaev,  
Prog. Nucl. Part. Phys. 119 (2021) 103858, 1-43.
5. Transverse-momentum-dependent parton distribution functions up to twist 4  
for spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
Phys. Rev. D 103 (2021) 014025, 1-18.

6. Deuteron polarizations in proton-deuteron Drell-Yan process for finding gluon transversity,  
S. Kumano, Qin-Tao Song,  
Phys. Rev. D 101 (2020) 094013, 1-8.
7. Gluon transversity in polarized proton-deuteron Drell-Yan process,  
S. Kumano, Qin-Tao Song,  
Phys. Rev. D 101 (2020) 054011, 1-22.
8. Gravitational form factors of hadrons (in Japanese),  
S. Kumano,  
Genshikaku Kenkyu, Vol.64, No.2 (2019) 76-89.
9. Hadron tomography by generalized distribution amplitudes in pion-pair production process  
 $\gamma^*\gamma \rightarrow \pi^0\pi^0$  and gravitational form factors for pion,  
S. Kumano, Qin-Tao Song, O. V. Teryaev,  
Phys. Rev. D 97 (2018) 014020, 1-28.
10. Tensor-polarized structure function  $b_1$  in standard convolution description of deuteron,  
W. Cosyn, Yu-Bing Dong, S. Kumano, M. Sargsian,  
Phys. Rev. D 95 (2017) 074036, 1-13.
11. Towards a unified model of neutrino-nucleus reactions for neutrino oscillation experiments,  
S. X. Nakamura, H. Kamano, Y. Hayato, M. Hirai, W. Horiuchi, S. Kumano, T. Murata,  
K. Saito, M. Sakuda, T. Sato, Y. Suzuki,  
Rept. Prog. Phys. 80 (2017) 056301, 1-38.
12. First Monte Carlo analysis of fragmentation functions from single-inclusive  
 $e^+e^-$  annihilation,  
N. Sato, J. J. Ethier, W. Melnitchouk, M. Hirai, S. Kumano, A. Accardi,  
Phys. Rev. D 94 (2016) 114004, 1-21.
13. Impacts of B-factory measurements on determination of fragmentation functions  
from electron-positron annihilation data,  
M. Hirai, H. Kawamura, S. Kumano, K. Saito,  
PTEP 2016 (2016) 113B04, 1-19.
14. Theoretical estimate on tensor-polarization asymmetry in proton-deuteron  
Drell-Yan process,  
S. Kumano, Qin-Tao Song,  
Phys. Rev. D 94 (2016) 054022, 1-10.
15. Accessing proton generalized parton distributions and pion distribution amplitudes  
with the exclusive pion-induced Drell-Yan process at J-PARC,  
T. Sawada, Wen-Chen Chang, S. Kumano, Jen-Chieh Peng, S. Sawada, K. Tanaka,  
Phys. Rev. D 93 (2016) 114034, 1-17.
16. Constituent-counting rule in photoproduction of hyperon resonances,  
Wen-Chen Chang, S. Kumano, T. Sekihara,  
Phys. Rev. D 93 (2016) 034006, 1-7.
17. Constraint on  $K\bar{K}$  compositeness of the  $a_0(980)$  and  $f_0(980)$  resonances  
from their mixing intensity,  
T. Sekihara, S. Kumano,  
Phys. Rev. D 92 (2015) 034010, 1-15.

18. The physics of the B factories,  
A. J. Bevan *et al.* (S. Kumano 47th author),  
Eur. Phys. J. C 74 (2014) 3026, 1-928.
19. Tomography of exotic hadrons in high-energy exclusive processes,  
H. Kawamura, S. Kumano,  
Phys. Rev. D 89 (2014) 054007, 1-13.
20. Determination of compositeness of the  $\Lambda(1405)$  resonance from its radiative decay,  
T. Sekihara, S. Kumano,  
Phys. Rev. C 89 (2014) 025202, 1-12.
21. Report on future nuclear physics in Japan (in Japanese),  
N. Aoi *et al.* (S. Kumano on Sec.2.6 Nucleon Structure),  
Genshikaku Kenkyu 57, Suppl.2 (2013) 1-312.
22. Determination of exotic hadron structure by constituent-counting rule  
for hard exclusive processes,  
H. Kawamura, S. Kumano, T. Sekihara,  
Phys. Rev. D 88 (2013) 034010, 1-12.
23. Numerical solution of  $Q^2$  evolution equations for fragmentation functions,  
M. Hirai S. Kumano,  
Comput. Phys. Commun. 183 (2012) 1002-1013.
24. Test of CDF dijet anomaly within the standard model,  
H. Kawamura, S. Kumano, Y. Kurihara,  
Phys. Rev. D 84 (2011) 114003, 1-11.
25. Strong three-body decays of  $\Lambda_c(2940)^+$ ,  
Yubing Dong, A. Faessler, T. Gutsche, S. Kumano, V. E. Lyubovitskij,  
Phys.Rev. D 83 (2011) 094005, 1-6.
26. Clustering aspects in nuclear structure functions,  
M. Hirai, S. Kumano, K. Saito, T. Watanabe,  
Phys. Rev. C 83 (2011) 035202, 1-10.
27. Radiative decay of  $\Lambda_c(2940)^+$  in a hadronic molecule picture,  
Yubing Dong, A. Faessler, T. Gutsche, S. Kumano, V. E. Lyubovitskij,  
Phys. Rev. D 82 (2010) 034035, 1-6.
28. Tensor-polarized quark and antiquark distribution functions in a spin-one hadron,  
S. Kumano,  
Phys. Rev. D 82 (2010) 017501, 1-4.
29. Using branching processes in nuclei to reveal dynamics of large-angle two-body scattering,  
S. Kumano, M. Strikman,  
Phys. Lett. B 683 (2010) 259-263.
30. Novel two-to-three hard hadronic processes and possible studies of  
generalized parton distributions at hadron facilities,  
S. Kumano, M. Strikman, K. Sudoh,  
Phys. Rev. D 80 (2009) 074003, 1-19.
31. Determination of gluon polarization from deep inelastic scattering and collider data,  
M. Hirai, S. Kumano,  
Nucl. Phys. B 813 (2009) 106-122.

32. High-energy hadron physics at J-PARC (in Japanese),  
S. Kumano,  
Genshikaku Kenkyu, 53 (2009) 74-84.
33. Projections of structure functions in a spin-one hadrons,  
T.-Y. Kimura, S. Kumano,  
Phys. Rev. D 78 (2008) 117505, 1-4.
34. Proposal for exotic-hadron search by fragmentation functions,  
M. Hirai, S. Kumano, M. Oka, K. Sudoh,  
Phys. Rev. D 77 (2008) 017504, 1-4.
35. Determination of nuclear parton distribution functions and their uncertainties  
in next-to-leading order,  
M. Hirai, S. Kumano, T.-H. Nagai,  
Phys. Rev. C 76 (2007) 065207, 1-16.
36. Determination of fragmentation functions and their uncertainties,  
M. Hirai, S. Kumano, T.-H. Nagai, K. Sudoh,  
Phys. Rev. D 75 (2007) 094009, 1-17.
37. Determination of polarized parton distribution functions with recent data  
on polarization asymmetries,  
M. Hirai, S. Kumano, N. Saito,  
Phys. Rev. D 74 (2006) 014015, 1-11.
38. Nuclear modification difference between  $u_v$  and  $d_v$  distributions  
and its relation to NuTeV  $\sin^2 \theta_W$  anomaly,  
M. Hirai, S. Kumano, T.-H. Nagai,  
Phys. Rev. D 71 (2005) 113007, 1-6.
39. Comparison of numerical solutions for  $Q^2$  evolution equations,  
S. Kumano, T.-H. Nagai,  
J. Comput. Phys. 201 (2004) 651-664.
40. Nuclear parton distribution functions and their uncertainties,  
M. Hirai, S. Kumano, T.-H. Nagai,  
Phys. Rev. C 70 (2004) 044905, 1-10.
41. Determination of polarized parton distribution functions and their uncertainties,  
M. Hirai, S. Kumano, N. Saito,  
Phys. Rev. D 69 (2004) 054021, 1-10.
42. Nuclear modification of transverse-longitudinal structure function ratio,  
M. Ericson, S. Kumano,  
Phys. Rev. C 67 (2003) 022201, 1-4.
43. Modified Paschos-Wolfenstein relation and extraction of weak mixing angle  $\sin^2 \theta_W$ ,  
S. Kumano,  
Phys. Rev. D 66 (2002) 111301, 1-5.
44. Polarized light anti-quark distributions in a meson cloud model,  
S. Kumano, M. Miyama,  
Phys. Rev. D 65 (2002) 034012, 1-14.
45. Determination of nuclear parton distributions,  
M. Hirai, S. Kumano, M. Miyama,  
Phys. Rev. D 64 (2001) 034003, 1-15.

46. Polarized parton distribution functions in the nucleon,  
Y. Goto, N. Hayashi, M. Hirai, H. Horikawa, S. Kumano, M. Miyama, T. Morii, N. Saito,  
T.-A. Shibata, E. Taniguchi, T. Yamanishi (Asymmetry Analysis Collaboration),  
Phys. Rev. D 62 (2000) 034017, 1-18.
47. Proton-deuteron asymmetry in Drell-Yan processes and polarized  
light anti-quark distributions,  
S. Kumano, M. Miyama,  
Phys. Lett. B 479 (2000) 149-155.
48. Structure functions in the polarized Drell-Yan processes with spin 1/2 and spin 1 hadrons:  
II. Parton model,  
S. Hino, S. Kumano,  
Phys. Rev. D 60 (1999) 054018, 1-12.
49. Structure functions in the polarized Drell-Yan processes with spin 1/2 and spin 1 hadrons:  
I. General formalism,  
S. Hino, S. Kumano,  
Phys. Rev. D 59 (1999) 094026, 1-16.
50. Numerical solution of  $Q^2$  evolution equation for the transversity distribution  $\Delta_{Tq}$ ,  
M. Hirai, S. Kumano, M. Miyama,  
Comput. Phys. Commun. 111 (1998) 150-166.
51. Numerical solution of  $Q^2$  evolution equations for polarized structure functions,  
M. Hirai, S. Kumano, M. Miyama,  
Comput. Phys. Commun. 108 (1998) 38-55.
52. Flavor asymmetry of anti-quark distributions in the nucleon,  
S. Kumano,  
Phys. Rept. 303 (1998) 183-257.
53. Two-loop anomalous dimensions for the structure function  $h_1$ ,  
S. Kumano, M. Miyama,  
Phys. Rev. D56 (1997) R2504-R2508.
54. Nuclear dependence of  $Q^2$  evolution in the structure function  $F_2$ ,  
S. Kumano, M. Miyama,  
Phys. Lett. B378 (1996) 267-271.
55. Numerical solution of  $Q^2$  evolution equations in a brute force method,  
M. Miyama, S. Kumano,  
Comput. Phys. Commun. 94 (1996) 185-215.
56. Nuclear shadowing in the structure function  $F_3(x)$ ,  
R. Kobayashi, S. Kumano, M. Miyama,  
Phys. Lett. B 354 (1995) 465-469.
57. FORTRAN program for a numerical solution of the nonsinglet Altarelli-Parisi equation,  
R. Kobayashi, M. Konuma, S. Kumano,  
Comput. Phys. Commun. 86 (1995) 264-278.
58. SU(2)-flavor-symmetry breaking in nuclear anti-quark distributions,  
S. Kumano,  
Phys. Lett. B 342 (1995) 339-344.

59. Nuclear shadowing in a parton recombination model:  $Q^2$  variation,  
S. Kumano,  
Phys. Rev. C 50 (1994) 1247-1248.
60. Nuclear shadowing in a parton recombination model,  
S. Kumano,  
Phys. Rev. C 48 (1993) 2016-2028.
61. Nuclear gluon distributions in a parton model,  
S. Kumano,  
Phys. Lett. B 298 (1993) 171-175.
62. Scalar mesons in  $\phi$  radiative decay: Their implications for spectroscopy  
and for studies of CP violation at  $\phi$  factories,  
F. E. Close, N. Isgur, S. Kumano,  
Nucl. Phys. B 389 (1993) 513-533.
63. A FORTRAN program for numerical solution of the Altarelli-Parisi equations  
by the Laguerre method,  
S. Kumano, J. T. Londergan,  
Comput. Phys. Commun. 69 (1992) 373-396.
64. Isolating the flavor symmetry breaking component of the nucleon sea  
from Drell-Yan asymmetries,  
S. Kumano, J. T. Londergan,  
Phys. Rev. D 46 (1992) 457-460.
65. Origin of SU(2) flavor symmetry breaking in anti-quark distributions,  
S. Kumano, J. T. Londergan,  
Phys. Rev. D 44 (1991) 717-724.
66. Effects of  $\pi$ NN form factor on pionic contributions to  $\bar{u}(x) - \bar{d}(x)$  distribution  
in the nucleon,  
S. Kumano,  
Phys. Rev. D 43 (1991) 3067-3070.
67.  $\pi$ NN form factor for explaining sea quark distributions in the nucleon,  
S. Kumano,  
Phys. Rev. D 43 (1991) 59-63.
68. Sum rule for the spin dependent structure function  $b_1(x)$  for spin one hadrons,  
F. E. Close, S. Kumano,  
Phys. Rev. D 42 (1990) 2377-2379.
69. Dependence of the European Muon Collaboration effect on nuclear structure,  
S. Kumano, F. E. Close,  
Phys. Rev. C 41 (1990) 1855-1858.
70. Nucleon structure with pion clouds in a flux-tube quark model,  
S. Kumano,  
Phys. Rev. D 41 (1990) 195-202.
71.  $N(e, e'\gamma)$  and the N- $\Delta$  transition quadrupole moment,  
S. Kumano,  
Nucl. Phys. A 495 (1989) 611-621.

72. Reply to: Comment on Pion nucleon bremsstrahlung and  $\Delta$  electromagnetic moments, L. Heller, S. Kumano, J. C. Martinez, E. J. Moniz, Phys. Rev. C 40 (1989) 2430.
73. Pionic contribution to the scalar and longitudinal N- $\Delta$  transition quadrupole form factors, S. Kumano, Phys. Lett. B 214 (1988) 132-138.
74. Decay of mesons in flux-tube quark model, S. Kumano, V. R. Pandharipande, Phys. Rev. D 38 (1988) 146-151.
75.  $\gamma$ -scaling in a simple quark model, S. Kumano, E. J. Moniz, Phys. Rev. C 37 (1988) 2088-2097.
76. Oscillations of the polarized vacuum around a large Z 'nucleus', A. Iwazaki, S. Kumano, Phys. Lett. B 212 (1988) 99-104.
77. Pion-nucleon bremsstrahlung and  $\Delta$  electromagnetic moments, L. Heller, S. Kumano, J. C. Martinez, E. J. Moniz, Phys. Rev. C 35 (1987) 718-736.

---

## Conference Proceedings

1. J-PARC hadron physics and future possibilities on color transparency,  
S. Kumano,  
Special Issue, The Future of Color Transparency, Hadronization and Short-Range Nucleon-Nucleon Correlation Studies, Physics 2022, 4(2), 565-577, Proceedings of the Workshop on The Future of Color Transparency and Hadronization Studies at Jefferson Lab and Beyond, June 7-8, 2021, (Online) USA-eastern time (MSU/Orsay/FIU/Penn State).
2. Possible studies on generalized parton distributions and gravitational form factors in neutrino reactions,  
S. Kumano, R. Petti,  
PoS (NuFact2021) 092, 1-7, Proceedings of the 22nd International Workshop on Neutrinos from Accelerators (NuFact2021), September 5-11, 2021, (Online/In person) Cagliari, Italy.
3. Useful relations and sum rules for PDFs and multiparton distribution functions of spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
arXiv:2201.06557, Proceedings of the 24th International Spin Symposium (Spin2021), (In person/Online) Matsue, Japan, October 18-22, 2021.
4. TMDs for spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
arXiv:2201.05397, Proceedings of the 24th International Spin Symposium (Spin2021), (In person/Online) Matsue, Japan, October 18-22, 2021.
5. Gluon transversity and TMDs for spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
arXiv:2201.04875, Proceedings of the 19th International Conference on Hadron Spectroscopy and Structure (Haron2021), (Online) Mexico City, Mexico, July 26-31, 2021.
6. Transverse-momentum-dependent parton distribution functions for spin-1 hadrons,  
S. Kumano, Qin-Tao Song,  
arXiv:2108.01381, SciPost Physics Proceedings in press, 28th International workshop on Deep-Inelastic Scattering and Related Subjects (DIS2021), (Online) Stony Brook, New York, USA, April 12-16, 2021.
7. Possible studies of gluon transversity in the spin-1 deuteron at hadron-accelerator facilities,  
S. Kumano, Qin-Tao Song,  
arXiv:2107.13676, SciPost Physics Proceedings in press, 28th International workshop on Deep-Inelastic Scattering and Related Subjects (DIS2021), (Online) Stony Brook, New York, USA, April 12-16, 2021.
8. Conference summary of QNP2018,  
S. Kumano,  
JPS Conference Proceedings 26 (2019) 011019, 1-10,  
Proceedings of Eighth International Conference on Quarks and Nuclear Physics (QNP2018), Tsukuba, Japan, November 13-17, 2018.

9. Theoretical predictions on polarization asymmetry for Drell-Yan process with spin-one deuteron and tensor-polarized structure function  $b_1$ ,  
S. Kumano, Qin-Tao Song,  
PoS (SPIN2018) 139, 1-6, Proceedings of 23rd International Spin Physics Symposium (SPIN2018), Ferrara, Italy, September 10-14, 2018.
10. Hadron tomography in meson-pair production and gravitational form factors,  
S. Kumano, Qin-Tao Song, O. V. Teryaev,  
PoS (SPIN2018) 074, 1-6, Proceedings of 23rd International Spin Physics Symposium (SPIN2018), Ferrara, Italy, September 10-14, 2018.
11. High-energy neutrino-nucleus interactions,  
S. Kumano,  
EPJ Web of Conf. 208 (2019) 07003, 1-6, Proceedings of 20th International Symposium on Very High Energy Cosmic Ray Interactions,  
Nagoya, Japan, May 21-25, 2018.
12. Theoretical perspective for the future experiments on parton densities,  
S. Kumano,  
PoS (DIS2018) 316, 1-15, Plenary talk at the XXVI International Workshop on Deep Inelastic Scattering and Related Subjects,  
Kobe, Japan, April 16-20, 2018.
13. Hadron tomography and its application to gravitational radii of hadrons,  
S. Kumano, Qin-Tao Song, O. V. Teryaev,  
Few Body Syst. 59 (2018) 102, 1-7.  
(In the following, conference names are not written.)
14. Tomography and gravitational radii for hadrons by three-dimensional structure functions,  
S. Kumano, Qin-Tao Song, O. V. Teryaev,  
EPJ Web Conf. 181 (2018) 01025, 1-10.
15. Standard convolution description of deuteron tensor spin structure,  
W. Cosyn, Yu-Bing Dong, S. Kumano, M. Sargsian,  
PoS DIS2017 (2018) 113, 1-6.
16. 3D structure of hadrons by generalized distribution amplitudes and gravitational form factors,  
S. Kumano, Qin-Tao Song, O. V. Teryaev,  
PoS DIS2017 (2018) 244, 1-6.
17. Hadron tomography studies by generalized parton distributions and distribution amplitudes,  
S. Kumano,  
EPJ Web Conf. 141 (2017) 06002, 1-8.
18. Exotic-hadron signature by constituent-counting rule in perturbative QCD,  
Wen-Chen Chang, H. Kawamura, S. Kumano, T. Sekihara,  
JPS Conf. Proc. 13 (2017) 020047, 1-6.
19. Estimate on spin asymmetry for Drell-Yan process at Fermilab with tensor-polarized deuteron,  
S. Kumano, Qin-Tao Song,  
JPS Conf. Proc. 13 (2017) 020048, 1-4.

20. Nuclear effects in deep inelastic scattering and transition region,  
S. Kumano,  
JPS Conf. Proc. 12 (2016) 010004, 1-8.
21. Progress on nuclear modifications of structure functions,  
S. Kumano,  
EPJ Web Conf. 112 (2016) 03003, 1-6.
22. Spin physics at J-PARC,  
S. Kumano,  
Int. J. Mod. Phys. Conf. Ser. 40 (2016) 1660009, 1-11.
23. Determining compositeness of hadronic resonances: the  $\Lambda(1405)$  radiative decay  
and the  $a_0(980)$ - $f_0(980)$  mixing,  
T. Sekihara, S. Kumano,  
JPS Conf. Proc. 8 (2015) 022006, 1-6.
24. Internal structure of exotic hadrons by high-energy exclusive reactions,  
H. Kawamura, S. Kumano, T. Sekihara,  
JPS Conf. Proc. 8 (2015) 022005, 1-6.
25. Toward construction of the unified lepton-nucleus interaction model  
from a few hundred MeV to GeV region,  
S. X. Nakamura, Y. Hayato, M. Hirai, H. Kamano, S. Kumano, M. Sakuda,  
K. Saito, T. Sato,  
AIP Conf. Proc. 1663 (2015) 120010, 1-4.
26. Clustering structure of nuclei in deep inelastic processes,  
M. Hirai, S. Kumano, K. Saito, T. Watanabe,  
J. Phys. Conf. Ser. 569 (2014) 012021, 1-5.
27. Tensor-polarized structure functions: Tensor structure of deuteron in 2020's,  
S. Kumano,  
J. Phys. Conf. Ser. 543 (2014) 012001, 1-16.
28. Studies of exotic hadrons by high-energy exclusive reactions,  
H. Kawamura, S. Kumano, T. Sekihara,  
JPS Conf. Proc. 1 (2014) 013043, 1-4.
29. Exotic hadron production in hard exclusive reactions,  
H. Kawamura, S. Kumano, T. Sekihara,  
PoS Hadron2013 (2013) 094, 1-5.
30. Report of German-Japanese Workshop on Modern Trends  
in Quantum Chromodynamics (in Japanese),  
T. Uematsu, H. Kawamura, S. Kumano, BUTSURI, 67, No.3 (2012) 201-202.
31. Selected topics on parton distribution functions,  
M. Hirai, H. Kawamura, S. Kumano, K. Saito,  
AIP Conf. Proc. 1418 (2011) 154-161.
32. Gluons and the quark sea at high energies: Distributions, polarization, tomography,  
D. Boer *et al.* (S. Kumano 50th author),  
arXiv:1108.1713 [nucl-th] (2011) 1-551.

33. Clustering effects for explaining an anomalous JLab result on the  ${}^9\text{Be}$  structure function,  
M. Hirai, S. Kumano, K. Saito, T. Watanabe,  
AIP Conf. Proc. 1388 (2011) 427-430.
34. Recent progress on nuclear parton distribution functions,  
M. Hirai, S. Kumano, K. Saito,  
AIP Conf. Proc. 1369 (2011) 88-97.
35. Plans for hadronic structure studies at J-PARC,  
S. Kumano,  
J. Phys. Conf. Ser. 312 (2011) 032005, 1-10.
36. Determination of fragmentation functions and their application to exotic-hadron search,  
M. Hirai, S. Kumano,  
Prog. Theor. Phys. Suppl. 186 (2010) 244-252.
37. Nuclear effects in neutrino-nucleus DIS,  
M. Hirai, S. Kumano, K. Saito,  
AIP Conf. Proc. 1189 (2009) 269-275.
38. High-energy hadron physics at J-PARC,  
S. Kumano,  
AIP Conf. Proc. 1056 (2008) 444-451.
39. Parton fragmentation in the vacuum and in the medium,  
S. Albino *et al.* (S. Kumano 18th author),  
arXiv:0804.2021 (2008) 1-43.
40. Determination of  $f_0(980)$  structure by fragmentation functions,  
M. Hirai, S. Kumano, M. Oka, K. Sudoh,  
Mod. Phys. Lett. A 23 (2008) 2226-2229.
41. Global NLO analysis of nuclear parton distribution functions,  
M. Hirai, S. Kumano, T.-H. Nagai,  
AIP Conf. Proc. 981 (2008) 265-267.
42. Global analysis of hadron-production data in  $e^+e^-$  annihilation for determining fragmentation functions,  
M. Hirai, S. Kumano, T.-H. Nagai, M. Oka, K. Sudoh,  
Nucl. Phys. A 805 (2008) 134-136.
43. Global analysis for determining fragmentation functions and their uncertainties in light hadrons,  
M. Hirai, S. Kumano, T.-H. Nagai, K. Sudoh,  
pp. 295-298 in "2007 QCD and high energy hadronic interactions",  
edited by E. Auge, B. Pietrzyk, and J. Tran Thanh Van, Gioi Publishers, Vietnam (2007).
44. Constraint on  $\Delta g(x)$  from  $\pi^0$  production at RHIC,  
M. Hirai, S. Kumano, N. Saito,  
AIP Conf. Proc. 915 (2007) 412-415.
45. Determination of fragmentation functions and their uncertainties from  $e^+ + e^- \rightarrow h + X$  data,  
M. Hirai, S. Kumano, T.-H. Nagai, K. Sudoh,  
AIP Conf. Proc. 915 (2007) 749-752.

46. Hadron physics at J-PARC,  
S. Kumano,  
Nucl. Phys. A 782 (2007) 442-449.
47. Constraint on  $\Delta g(x)$  at large  $x$ ,  
M. Hirai, S. Kumano, N. Saito,  
pp.763-766, Proceedings of the 14th International Workshop  
on Deep Inelastic Scattering, World Scientific (Jan. 2007),  
edited by M. Kuze, K. Nagano, and K. Tokushuku.
48. Progress on global analysis for determining parton distribution functions in nuclei,  
M. Hirai, S. Kumano, T.H. Nagai,  
pp.161-164, Proceedings of the 14th International Workshop  
on Deep Inelastic Scattering, World Scientific (Jan. 2007),  
edited by M. Kuze, K. Nagano, and K. Tokushuku.
49. Global analysis of AAC for determining polarized parton distribution functions,  
M. Hirai, S. Kumano, N. Saito,  
AIP Conf. Proc. 842 (2006) 366-368.
50. A Possible nuclear effect on the NuTeV  $\sin^2 \theta_W$  anomaly,  
M. Hirai, S. Kumano, T.-H. Nagai,  
AIP Conf. Proc. 842 (2006) 871-873.
51. Nuclear modification of valence-quark distributions and its effects  
on NuTeV  $\sin^2 \theta_W$  anomaly,  
M. Hirai, S. Kumano, T.-H. Nagai,  
Nucl. Phys. B Proc. Suppl. 149 (2005) 224-226.
52. Nuclear corrections of parton distribution functions,  
M. Hirai, S. Kumano, T.-H. Nagai,  
Nucl. Phys. B Proc. Suppl. 139 (2005) 21-26.
53. AAC analysis of polarized parton distributions with uncertainties,  
M. Hirai, S. Kumano, N. Saito,  
pp.1120-1123, Proceedings of the 12th International Workshop  
on Deep Inelastic Scattering, Strbske-Pleso, Slovakia, April 14-18, 2004,  
Institute of Experimental Physics SAS, Kosice (2004),  
edited by D. Bruncko, J. Ferencei, and P. Strizenec.
54. Nuclear parton distribution functions and their effects on  $\sin^2 \theta_W$  anomaly,  
M. Hirai, S. Kumano, T.-H. Nagai,  
pp.323-326, Proceedings of the 12th International Workshop  
on Deep Inelastic Scattering, Strbske-Pleso, Slovakia, April 14-18, 2004,  
Institute of Experimental Physics SAS, Kosice (2004),  
edited by D. Bruncko, J. Ferencei, and P. Strizenec.
55. Neutrino scattering physics at superbeams and neutrino factories,  
S. Kumano,  
AIP Conf. Proc. 721 (2004) 29-36.
56. Analysis of  $F_2$  and Drell-Yan data for nuclear parton distribution functions,  
S. Kumano,  
J. Phys. G 29 (2003) 1943-1946.

57. Uncertainty of polarized parton distributions,  
M. Hirai, Y. Goto, T. Horiuchi, H. Kobayashi, S. Kumano, M. Miyama, N. Saito,  
T.-A. Shibata (Asymmetry Analysis Collaboration),  
*Int. J. Mod. Phys. A* 18 (2003) 1203-1210.
58. Summary of working group 3 at the neutrino-factory workshop NuFact02,  
A. L. Kataev, S. Kumano,  
*J. Phys. G* 29 (2003) 1925-1934.
59. A Model prediction for polarized anti-quark flavor asymmetry,  
S. Kumano,  
*Int. J. Mod. Phys. A* 18 (2003) 1457-1460.
60. Studies of parton distributions at a neutrino factory,  
S. Kumano,  
*Nucl. Instrum. Meth. A*503 (2003) 273-275.
61. Global analysis of nuclear DIS and Drell-Yan data,  
S. Kumano,  
pp.169-174, Proceedings of the RIKEN BNL Research Center Summer Program  
on Current and Future Directions at RHIC, edited by A. Deshpande, *et al.*, Vol.45 (2002).
62. Polarized light-antiquark flavor asymmetry,  
S. Kumano,  
pp.309-314, Proceedings of the RIKEN BNL Research Center Summer Program  
on Current and Future Directions at RHIC, edited by A. Deshpande, *et al.*, Vol.45 (2002).
63. Possible studies of parton distribution functions at JHF,  
S. Kumano,  
pp.73-82, KEK Proceedings 2002-13 of the 2nd Theory Workshop on JHF Nuclear Physics,  
edited by Y. Akaishi, T. Hatsuda, and M. Oka (2002).
64. Structure functions of the nucleon and nuclei in neutrino reactions,  
S. Kumano,  
*Nucl. Phys. B Proc. Suppl.* 112 (2002) 42-48.
65. Parametrization of parton distribution functions in nuclei,  
S. Kumano, M. A. Nakamura,  
pp.247-254, Proceedings of the International Symposium on Electromagnetic Interactions  
in Nuclear and Hadron Physics, edited by M. Fujiwara, T. Shima, World Scientific (2002).
66. Determination of parton distribution functions in nuclei,  
S. Kumano,  
pp.309-314, Proceedings of the Sixth Workshop on Non-Perturbative QCD,  
edited by H. M. Fried, Y. Gabellini, B. Muller, World Scientific (2002).
67. Parton distribution functions in nuclei,  
M. Hirai, S. Kumano, M. Miyama,  
*Sci. Cult. Ser.-Phys.* 21 (2002) 299-302.
68. Flavor asymmetry of polarized antiquark distributions,  
S. Kumano, M. Miyama,  
*Sci. Cult. Ser.-Phys.* 21 (2002) 604-607.

69. Light-antiquark flavor asymmetry in polarized distributions,  
S. Kumano and M. Miyama,  
pp.185-195, Proceedings of the Topical Workshop on Transverse Spin Physics,  
edited by J. Blümlein, W.-D. Nowak, G. Schnell, DESY Zeuthen report 01-01 (2001).
70. Polarized structure functions of the deuteron,  
S. Kumano,  
AIP Conf. Proc. 570 (2001) 397-401.
71. Parametrization of nuclear parton distributions,  
M. Hirai, S. Kumano, M. Miyama,  
Pramana 57 (2001) 445-458.
72.  $Q^2$  evolution of transversity distributions: applications,  
S. Kumano,  
pp.79-90, Proceedings of the RIKEN BNL Research Center Workshop on  
Future Transversity Measurements, edited by D. Boer and M. Perdekamp, Vol.29 (2000).
73. Parametrization of polarized parton distributions,  
S. Kumano,  
pp.371-374, Proceedings of the XXXVth Rencontres de Moriond  
“QCD High Energy Hadronic Interactions”,  
edited by J. Tran Thanh Van, The Gioi publishers (2000).
74. Flavor asymmetry in polarized proton-deuteron Drell-Yan process,  
S. Kumano,  
pp.243-248, Proceedings of the the RCNP-TMU Symposium on  
Spins in Nuclear and Hadronic Reactions,  
edited by H. Yabu, T. Suzuki and H. Toki, World Scientific, Singapore (2000).
75. Polarized proton deuteron Drell-Yan processes and parton distributions,  
S. Hino, S. Kumano,  
Nucl. Phys. A670 (2000) 80-83.
76. Possible studies of parton distributions at JHF: Polarized PD Drell-Yan process,  
S. Kumano,  
pp. 69-74, arXiv:hep-ph/0001053, KEK Proceedings 2000-19 of the Workshop on  
Di-lepton Experiments at 50-GeV PS, edited by J. Chiba, S. Sawada (2000).
77. AAC polarized parton distributions,  
S. Kumano,  
pp.90-95, Proceedings of the RIKEN BNL Research Center Joint Workshops on  
Predictions and Uncertainties for RHIC Spin Physics  
and “Event Generators for RHIC Spin Physics III”,  
edited by J. Qiu, N. Saito, A. Schäfer, W. Vogelsang, Vol.27 (2000).
78. Flavor asymmetry of polarized parton distributions in Drell-Yan processes,  
S. Kumano,  
pp.108-114, Proceedings of the RIKEN BNL Research Center Workshop on  
RHIC Spin, edited by L. Bland *et al.*, Vol. 25 (1999).
79. Polarized parton distribution functions from the  $A_1$  asymmetry data,  
Y. Goto, N. Hayashi, M. Hirai, H. Horikawa, S. Kumano, M. Miyama, T. Morii, N. Saito,  
T. A. Shibata, E. Taniguchi, T. Yamanishi,

- p.320-323, Proceedings of the Workshop on Polarized Protons at High-Energies - Accelerator Challenges and Physics Opportunities (DESY-PROC-1999-03), edited by A. De Roeck, D. Barber, G. Radel (1999).
80. Unpolarized and polarized parton distributions in nuclei,  
S. Kumano,  
pp.103-108, Proceedings of the RIKEN BNL Research Center Workshop on Hard Parton Physics in High Energy Nuclear Collisions,  
edited by J. Carroll, C. Gale, M. Tannenbaum, and R. Venugopalan, Vol. 17 (1999).
  81. Parton-distribution studies in the medium and large  $x$  regions,  
S. Kumano,  
pp.129-143, KEK Proceedings 99-5 of the JHF K-Arena Workshop,  
edited by S. Sawada (1999).
  82. Structure functions in polarized proton deuteron Drell-Yan processes,  
S. Kumano,  
Nucl. Phys. B Proc. Suppl. 79 (1999) 629-631.
  83. Transversity distributions and spin asymmetries,  
S. Hino, M. Hirai, S. Kumano, M. Miyama,  
arXiv:hep-ph/9810444, pp.328-330, Proceedings of the 13th International Symposium on High Energy Spin Physics, Protvino, Russia, Sept. 8-12, 1998, edited by N. E. Tyurin, V. L. Solovianov, S. M. Troshin, and A. G. Ufimtsev, World Scientific, Singapore (1999).
  84. Polarized proton-deuteron Drell-Yan processes,  
S. Kumano,  
pp.104-118, Proceedings of the Workshop on Recent and Future Studies on the Nucleon Spin, edited by N. Horikawa and T. Iwata, Nagoya University (1998).
  85. Polarized proton-deuteron Drell-Yan processes,  
S. Hino, S. Kumano,  
pp.333-344, Proceedings of the RIKEN BNL Research Center Workshop on Structure of Hadrons – Introduction to QCD Hard Process,  
edited by N. Saito, T.-A. Shibata, K. Yazaki, Vol. 16 (1998).
  86. Spin asymmetries at RHIC and polarized parton distributions,  
S. Hino, M. Hirai, S. Kumano, M. Miyama,  
pp.680-684, Proceedings of the 6th International Workshop on Deep Inelastic Scattering and QCD, edited by G. Coremans, R. Roosen, World Scientific, Singapore (1999).
  87. Studies of polarized parton distributions at RHIC,  
S. Kumano,  
Genshikaku Kenkyu, 42 (1998) 61-72 [arXiv:hep-ph/9801424].
  88. One and two loop anomalous dimensions for the chiral odd structure function  $h_1$ ,  
S. Kumano, M. Miyama,  
p.266-270, Proceedings of the 10th Summer School and Symposium on Nuclear Physics, “QCD, Lightcone Physics and Hadron Phenomenology”,  
edited by Chueng-Ryong Ji and Dong-Pil Min, World Scientific, Singapore (1998).
  89. Anti-quark flavor asymmetry with new accelerator facilities,  
S. Kumano,  
pp.255-260, Proceedings of the International Workshop on Exciting Physics with New Accelerator Facilities, edited by H. Toki and S. Date, World Scientific, Singapore (1998).

90. Studies of transversity distributions at RHIC,  
S. Kumano,  
pp.327-332, Proceedings of the RIKEN BNL Research Center Workshop on  
RHIC-Spin physics, Vol. 7 (1998).
91. Analyses of the nucleon spin structure functions,  
S. Kumano,  
pp.41-46, Proceedings of the RIKEN BNL Research Center Workshop on  
Quarks and Gluons in the Nucleon, Vol. 6 (1997).
92. Two loop anomalous dimensions for the structure function  $h_1$ ,  
S. Kumano and M. Miyama,  
pp.87-93, Proceedings of the RIKEN BNL Research Center Workshop on  
Perturbative QCD as a probe of hadron structure, Vol.2 (1997).
93. Structure functions in the nucleon and nuclei,  
S. Kumano,  
pp.52-159, Proceedings of the Hokkaido summer school on nuclear physics,  
edited by H. Morita, Y. Hirata, N. Ohtsuka (1997).
94. Numerical solution of NLO  $Q^2$  evolution equations for spin dependent structure functions,  
M. Hirai, S. Kumano, M. Miyama ,  
pp.410-412, Proceedings of the 12th International Symposium on High-Energy Spin Physics,  
edited by C. W. de Jager *et al.*, World Scientific, Singapore (1997).
95. Flavor asymmetry  $\bar{u} - \bar{d}$  in the nucleon,  
S. Kumano,  
pp. 64-68, Proceedings of the Circum-Pan-Pacific Workshop on High Energy Spin Physics  
'96, edited by S. Aoki, T. Hara, M. Itoh, C. S. Lim, T. Morii, Yamanishi, T. Morii,  
S. N. Mukherjee, Kobe University press (1997).
96.  $Q^2$  evolution studies of nuclear structure function  $F_2$  at HERA,  
S. Kumano, M. Miyama,  
pp.968-970, Proceedings of Future physics at HERA,  
edited by G. Ingelman, A. De Roeck, R. Klanner (1996).
97. Nuclear modification of the flavor asymmetry  $\bar{u} - \bar{d}$ ,  
S. Kumano,  
p.646-647, Proceedings of the XIV International Conference on on Particles and Nuclei,  
edited by C. E. Carlson, J. J. Domingo, World Scientific, Singapore (1997).
98. Parton distributions in nuclei: Overview and prospect,  
S. Kumano,  
Soryushiron Kenkyu, 94 (1997) F65-74.
99. Shadowing aspects of nuclear parton distributions,  
S. Kumano,  
Austral. J. Phys. 50 (1997) 45-51.
100. Nuclear modification in the structure function  $F_3$ ,  
S. Kumano, M. Miyama,  
pp.476-479, Proceedings of the IV International Symposium on  
Weak and Electromagnetic Interactions in Nuclei,  
edited by H. Ejiri, T. Kishimoto, and T. Sato, World Scientific, Singapore (1995).

101. Numerical solution of Altarelli-Parisi equations,  
R. Kobayashi, M. Konuma, S. Kumano, M. Miyama,  
Prog. Theor. Phys. Suppl. 120 (1995) 257-262.
102. Parton distributions in nuclei,  
S. Kumano,  
pp.276-280, Proceedings of the 2nd International Symposium on Medium Energy Physics,  
edited by Wei-Qin Chao, Peng-Nian Shen, World Scientific, Singapore (1995).
103.  $\phi$  radiative decays and scalar meson structure,  
S. Kumano,  
pp. 92-99, Proceedings of the Symposium on Quark Nuclear Physics  
with GeV Cooler-Ring Protons and Beyond, RCNP-P-135, Osaka University (1995).
104. Studies of  $f_0$  and  $a_0$  meson structures at  $\phi$  factory  
and their effects on CP violation research,  
S. Kumano,  
Soryushiron Kenkyu, 90 (1995), D43-47.
105. SU(2) flavor breaking in anti-quark distributions,  
S. Kumano,  
pp.370-372, Proceedings of the 13th International Conference on Particles and Nuclei,  
edited by A. Pascolini, World Scientific, River Edge (1994).
106. Spin and flavor sum rules based on a parton model: SU(2) flavor breaking  
in anti-quark distributions,  
S. Kumano,  
pp.410-411 Proceedings of the 13th International Conference on Particles and Nuclei,  
edited by A. Pascolini, World Scientific, River Edge (1994).
107. Tensor structure function  $b_1(x)$  for spin one hadrons,  
S. Kumano,  
Italian Phys. Soc. Proc. 44 (1993) 371-378.
108. Test of scalar meson structure in  $\phi$  radiative decays,  
S. Kumano,  
Italian Phys. Soc. Proc. 39 (1993) 283-292.
109. 'Local' EMC effects and the  $J/\psi$  suppression,  
S. Kumano,  
pp.33-37, Proceedings of the International Workshop on Gross Properties of Nuclei and  
Nuclear Excitations, edited by H. Feldmeier (1992).
110.  $\Delta$  dipole and quadrupole moments,  
S. Kumano,  
pp.88-98, Proceedings of the Workshop on Baryon Spectroscopy and the Structure  
of the Nucleon, edited by H. P. Morsch, M. Soyeur,  
Research Centre Jülich Conference Service (1992).
111. Gottfried sum rule and  $\bar{u} - \bar{d}$  distribution in the nucleon,  
S. Kumano, J. T. Londergan,  
AIP Conf. Proc. 243 (1992) 727-729.
112. Deep inelastic scattering of leptons and tests of quark/parton models,  
J. T. Londergan, S. Kumano,  
pp.1-32, Proceedings of the International Conference on Spin and Isospin in Nuclear  
Interactions, edited by C. D. Goodman, G. E. Walker, S. W. Wissink, Springer (1991).

113. Pionic contribution to the  $N-\Delta$  transition quadrupole moment,  
S. Kumano,  
pp.791-793, Proceedings of the International Symposium on Weak and Electromagnetic Interactions in Nuclei, edited by P. Depommier, Frontieres (1989).
114.  $N(e,e'\gamma)$  and the  $N-\Delta$  transition quadrupole moment,  
S. Kumano,  
pp.795-797, Proceedings of the International Symposium on Weak and Electromagnetic Interactions in Nuclei, edited by P. Depommier, Frontieres (1989).
115. Vacuum oscillations around a large  $Z$  'nucleus',  
S. Kumano, A. Iwazaki,  
pp.151-154, Proceedings of the 17th International Workshop on Gross Properties of Nuclei and Nuclear Excitations, edited by H. Feldmeier, GSI, Germany (1989).
116. Oscillations of the polarized vacuum around a large  $Z(\approx 180)$  'nucleus',  
S. Kumano, A. Iwazaki, pp.423-427, Proceedings of the Microscopic Models in Nuclear Structure Physics, edited by M. W. Guidry, D. H. Feng, J. H. Hamilton (1989).
117.  $\gamma$ -scaling in a simple quark model,  
S. Kumano, E. J. Moniz,  
AIP Conf. Proc. 176 (1988) 498-501.

### Other publications

1. Science Requirements and Detector Concepts for the Electron-Ion Collider: EIC Yellow Report, R. Abdul Khalek *et al.* (S. Kumano 150th author; Sec. 7.5.2, Neutrino physics by S. Kumano and R. Petti), arXiv:2103.05419.
2. Studying Generalized Parton Distributions with Exclusive Drell-Yan process at J- PARC, J.-K. Ahn, S. Ashikag, W.-C. Chang, S. Choi, S. Diehl, Y. Goto, K. Hicks, Y. Igarashi, K. Joo, S. Kumano, Y. Ma, K. Nagai, K. Nakano, M. Niiyama, H. Noumi, H. Ohnishi, J.-C. Peng, H. Sako, S. Sawada, T. Sawada, K. Shiotori, K. Tanaka, and N. Tomida, Letter of Intent (LoI\_2019-07), 27th J-PARC PAC meeting, Tokai, Japan, Jan.16-18, 2019.
3. EIC project to explore quark world (in Japanese)  
[from The Deepest Recesses of the Atom (Scientific American, June 2019)]  
A. Deshpande, R. Yoshida; R. Kumagai (Japanese translation),  
S. Kumano (Supervision for Japanese text)  
Nikkei Science 2019.9., Vol.49 No.9 (2019) 70-77.
4. Tensor-polarized structure function  $b_1$  by convolution picture for deuteron,  
W. Cosyn, Yu-Bing Dong, S. Kumano, M. Sargsian,  
arXiv:1702.07594, contribution to the 22nd International Spin Symposium (2016).
5. Spin asymmetry for proton-deuteron Drell-Yan process with tensor-polarized deuteron,  
S. Kumano, Qin-Tao Song,  
arXiv:1702.01477, contribution to the 22nd International Spin Symposium (2016).
6. Nuclear modification of structure functions in lepton scattering,  
S. Kumano,  
arXiv:hep-ph/0307105, contribution to the Second International Workshop on Neutrino-Nucleus Interactions in the Few GeV Region (2002).

7. Studies of structure functions at a low-energy facility,  
S. Kumano,  
arXiv:hep-ph/9806333, contribution to the future plan at RCNP (1998).
8. Modification of parton distributions in nuclei,  
S. Kumano, K. Umekawa,  
arXiv:hep-ph/9803359.
9. Studies of valence-quark shadowing at HERA,  
S. Kumano,  
arXiv:nucl-th/9510029, contribution to the nuclear HERA project (1995).