

# List of publications

**Kouichi Hirotani**

**Five most important papers are highlighted**

## Book chapters

1. Theories of High Energy Emission from Rotation-Powered Pulsars. Hirotani, K., 2011, *Horizons in World Physics*, vol. **276**, ed. A. Reimer, Nova Science Publishers, Inc., pp. 287-332 (Chapter 9), (ISBN: 978-1-61324-654-2)
2. What pulsar high-energy emission model survives? Hirotani, K., 2011, *High Energy Emission from Pulsars and Their Systems*, eds. N. Rea & D. F. Torres, Springer Verlag, Heidelberg, pp. 117-137 (ISBN 1570-6591)

## Invited review papers

3. **High-energy Emission from Pulsar Magnetospheres. K. Hirotani, 2006, *Mod. Phys. Lett. A (Brief Review)* 21, 1319-1337**
4. Astrophysical Jets Associated with Active Galactic Nuclei. S. Kamenon, K. Hirotani, 2000, *Journal of Plasma and Fusion Research*, **76**, 648-655.

## Refereed publications

5. Teaelectronvolts pulsed emission from the Crab pulsar detected by MAGIC. J. Aleksić, S. Ansoldi, L. A. Antonelli, P. Antoranz et al. 2015, *Astronomy & Astrophysics*, accepted on Oct 22.
6. An assessment of the pulsar outer gap model - II. Implications for the predicted gamma-ray spectra. D. Viganò, D. F. Torres, K. Hirotani, M. Pessah, 2015, *Mon. Not. Roy. Astron. Soc.*, **447**, 2649
7. An assessment of the pulsar outer gap model - I. Assumptions, uncertainties, and implications on the gap size and the accelerating field. D. Viganò, D. F. Torres, K. Hirotani, M. Pessah, 2015, *Mon. Not. Roy. Astron. Soc.*, **447**, 2631
8. Compact formulae, dynamics and radiation of charged particles under synchro-curvature losses. D. Viganò, D. F. Torres, K. Hirotani, M. Pessah, 2015, *Mon. Not. Roy. Astron. Soc.*, **447**, 1164
9. Steady General Relativistic Magnetohydrodynamic Inflow/Outflow Solution Along Large-Scale Magnetic Fields that Thread a Rotating Black Hole. H.-Y. Pu, M. Nakamura, K. Hirotani, Y. Mizuno, K. Wu, K. Asada, 2015, *Astrophys. J.*, **801**, 56.
10. Three-dimensional Non-vacuum Pulsar Outer-gap Model: Localized Acceleration Electric Field in the Higher Altitudes. K. Hirotani, 2015, *Astrophys. J.*, **798**, L40.
11. Does a strong particle accelerator arise very close to the light cylinder in a pulsar magnetosphere? K. Hirotani 2014, *Mon. Not. Roy. Astron. Soc.*, **442**, L43.
12. VizieR Online Data Catalog: Crab pulsar 50-400GeV light curve. J. Aleksić, T.-Y. Saito, R. Zanin, S. Bonnefoy, K. Hirotani et al. (78 authors) 2014, VizieR On-line Data Catalog: J/A+A/565/L12. Originally published in: *Astron. & Astrophys.*, **565**, L12.

13. Detection of bridge emission above 50 GeV from the Crab pulsar with the MAGIC telescopes. Aleksic et al. (158 authors), Corresponding authors: T. Y. Saito, R. Zanin, S. Bonnefoy, & K. Hirotani, 2014, *Astron. & Astrophys.*, **565**, L12.
- 14. Luminosity Evolution of Gamma-ray Pulsars. K. Hirotani, 2013, *Astrophys. J.*, 766, 98.**
15. Launching and quenching of black hole relativistic jets at low accretion rate. H.-Y. Pu, K. Hirotani, and H.-K. Chang, 2012, *Astrophys. J.*, **758**, 113 (13pp)
16. Phase-resolved energy spectra of the Crab pulsar in the range of 50--400 GeV measured with the MAGIC telescope. Aleksic et al. (158~authors), Corresponding authors: S. Klepser, G. Giavitto, T. Y. Saito, K. Hirotani, 2012, *Astronomy & Astrophysics* **540**, 69
17. Observations of the Crab pulsar between 25 and 100-GeV with the MAGIC I telescope. Aleksic et al. (158 authors), Corresponding authors: T. Y. Saito, K. Hirotani, 2011, *Astrophys. J.* **742**, 43-56
18. Death Line of Gamma-ray Pulsars with Outer Gaps. R. B. Wang, K. Hirotani, 2011, *Astrophys. J.* **736**, 127-134
19. Pulsar Outer-gap Electrodynamics: Hardening of Spectral Shape in the Trailing Peak in Gamma-ray Light Curve. K. Hirotani, 2011, *Astrophys. J.* **733**, L49-53
- 20. Outer-gap vs. Slot-gap Models for Pulsar High Energy Emissions: The Case of the Crab Pulsar. K. Hirotani, 2008, *Astrophys. J.* 688, L25-28**
21. Constraints on the Steady and Pulsed Very High Energy Gamma-Ray Emission from Observations of PSR B1951+32/CTB 80 with the MAGIC Telescope. J. Albert et al. 2007, *Astroph. J.* **669**, 1143—1149
22. High-energy Emission from Pulsar Outer Magnetospheres. K. Hirotani, 2007, *Astrophys. J.* **662**, 1173—1176
23. Particle Accelerator in Pulsar Magnetospheres: Super Goldreich-Julian Current with Ion Emission from the Neutron Star Surface. K. Hirotani, 2006, *Astrophys. J.* **652**, 1475--1493
24. A two-dimensional electro-dynamical outer gap model for gamma-ray pulsars: Gamma-ray spectrum. J. Takata, S. Shibata K. Hirotani, H.-K. Chang, 2006, *Monthly Notices of Royal Astron. Soc.*, **366**, 1310-1328
- 25. Kinetic Luminosity and Composition of Active Galactic Nuclei jets. K. Hirotani, 2005, *Astrophys. J.*, 619, 73-85**
26. A pulsar outer gap model with trans-field structure. J. Takata, S. Shibata, K. Hirotani, 2004, *Monthly Notices of Royal Astron. Soc.* **354**, 1120-1132
27. Outer-magnetospheric model for Vela-like pulsars: Formation of sub-GeV spectrum. J. Takata, S. Shibata, K. Hirotani, 2004, *Monthly Notices of Royal Astron. Soc.* **348**, 241—249
28. Electrodynamics of Outer-Gap Accelerator: Formation of Soft Power-law Spectrum Between 100 MeV and 3 GeV. K. Hirotani, A. K. Harding, S. Shibata 2003, *Astrophys. J.*, **591**, 334--353.
29. Gamma-ray Emission from an Outer--Gap Accelerator: Constraints on Magnetospheric Current, Magnetic Inclination, and Distance for PSR B1055-52. K. Hirotani, S. Shibata, 2002, *Astrophys. J.*, **564**, 369-378
30. Electrodynamic Structure of an Outer--Gap Accelerator: Location of the Gap and the Gamma-ray

Emission from the Crab Pulsar. K. Hirotani, S. Shibata, 2001, *Astrophys. J.*, **558**, 216-227

31. One-dimensional Electric Field Structure of an Outer Gap Accelerator - III. Location of the Gap and the Gamma-ray Spectrum. K. Hirotani, S. Shibata, 2001, *Monthly Notices of Royal Astron. Soc.* **325**, 1228-1240
32. Gamma-ray Emissions from Pulsars: Spectra of the TeV Fluxes from Outer-gap Accelerators,. K. Hirotani, 2001, *Astrophys. J.*, **549**, 495-508
33. Multi-frequency VLBI Observations of OT 081. S. Iguchi, K. Fujisawa, S. Kamenno, M. Inoue, Z. Q. Shen, K. Hirotani, M. Miyoshi, 2000, *Publ. Astron. Soc. Japan* **52**, 1037
34. Magnetically Dominated Accretion onto a Black Hole: Collimation of Highly Variable Fluid Disturbances. K. Hirotani, 2000, *Il Nuovo Cimento B*, **115**, 775--794
35. Pair Plasma Dominance in the Parsec-scale Relativistic Jet of 3C345. K. Hirotani, S. Iguchi, M. Kimura, K. Wajima, 2000, *Astrophys. J.*, **545**, 100-106
36. Electrodynamics Structure of Outer Gap Accelerator: Invisibility of the TeV Emission from Pulsar Magnetosphere. K. Hirotani, 2000, *Publ. Astron. Soc. Japan*, **52**, 645-657
37. Gamma-ray Emission from Pulsars: Strength of the Acceleration Field in the Outer Gap. K. Hirotani, 2000, *Monthly Notices of Royal Astron. Soc.* **317**, 225-233
38. Gamma-ray Emission from Pulsar Outer Magnetosphere: Spectra of Curvature Radiation. K. Hirotani, S. Shibata, 1999, *Publ. Astron. Soc. of Japan*, **51**, 683—691
39. One-dimensional Electric Field Structure of an Outer Gap Accelerator - II.  $\gamma$ -ray Production due to Inverse Compton scatterings. K. Hirotani, S. Shibata 1999, *Monthly Notices of Royal Astron. Soc.* **308**, 67-76
40. One-dimensional Electric Field Structure of an Outer Gap Accelerator - I.  $\gamma$ -ray Production due to Curvature Radiation. K. Hirotani, S. Shibata, 1999, *Monthly Notices of Royal Astron. Soc.* **308**, 54-66
41. Pair Plasma Dominance in the 3C 279 Jet on Parsec Scales. K. Hirotani, S. Iguchi, M. Kimura, K. Wajima, 1999, *Publ. Astron. Soc. of Japan*, **51**, 263—267
42. Collimation of Highly Variable Magnetospheric Disturbances around a Rotating Black Hole, K. Hirotani 1998, *Astrophys. J.*, **500**, 632—641
43. Pair Plasma Production in a Force-free magnetosphere around a Supermassive Black Hole. K. Hirotani, I. Okamoto, 1998, *Astrophys. J.*, **497**, 563-572.
44. Absorption of Waves in Accretion Disks. II. Resonance at the Height Where Wave Frequency Matches Epicyclic Frequency. K. Hirotani, S. Kato, 1995, *Publ. Astrophys. Soc. of Japan*, **47**, 653—660
45. Absorption of Waves in Accretion Disks. I. Resonance at the Radius Where Wave Frequency Matches Vertical Brunt-Vaisala Frequency. K. Hirotani, S. Kato, 1995, *Publ. Astrophys. Soc. of Japan*, **47**, 645—652
46. Collimated Propagation of Magnetohydrodynamic Waves near a Schwarzschild Black Hole. K. Hirotani, A. Tomimatsu, 1994, *Publ. Astrophys. Soc. of Japan*, **46**, 643—651
47. Time Variation of Magnetohydrodynamic Accretion onto a Black Hole. K. Hirotani, M. Takahashi,

A. Tomimatsu, 1993, *Publ. Astrophys. Soc. of Japan*, **45**, 431—441

48. Accretion in a Kerr Black Hole Magnetosphere: Energy and Angular Momentum Transport Between the Magnetic Field and the Matter. K. Hirotani, M. Takahashi, S. Nitta, A. Tomimatsu, 1992, *Astrophys. J.*, **386**, 455—463
49. An Interpretation of X-ray Spectra of Type II Bursts from the Rapid Burster: Comptonization due to Accretion Flow. K. Hirotani, T. Hanawa, N. Kawai 1990, *Astrophys. J.*, **355**, 577—584
50. The Rapid Burster: A Weakly Magnetized Neutron Star. T. Hanawa, K. Hirotani, 1989, *Astrophys. J.*, **336**, 920—923

## Submitted papers

51. **Energetic gamma radiation from rapidly rotating black holes. K. Hirotani, H.-Y. Pu 2015, submitted to *Astrophys. J.***

## Proceedings

52. CTA Contributions to the 34th International Cosmic Ray Conference (ICRC2015). CTA Consortium, The: Abchiche, A., Abeysekara, U., Abril, Ó., et al. In CTA conference proceedings at the ICRC2015, The Hague (The Netherlands). (arXiv:1508.05894)
53. Detection of VHE Bridge emission from the Crab pulsar with the MAGIC Telescopes. T.-Y. Saito, S. Bonnefoy, K. Hirotani, R. Zanin for the MAGIC collaboration, in proc. of the 2014 Fermi Symposium proceedings - eConf C14102.1, (arXiv:1502.02757).
54. Development of the camera for the large size telescopes of the Cherenkov Telescope Array. Inome, Y. et al. (152 authors) 2014, in proc. of the SPIE, Volume 9151, id. 915142 8 pp. (2014), ISBN: 9780819496195.
55. The large size telescope of the Cherenkov Telescope Array. Ambrosi, G. et al., (127 authors) 2014, in proc. of the SPIE, Volume 9145, id. 91450P 10 pp. (2014), ISBN: 9780819496133.
56. Luminosity evolution of rotation-powered, high-energy pulsars. K. Hirotani, 2014, in the 12<sup>th</sup> Asia Pacific Physics Conference (APPC12), JPS conference proceeding, vol. 2, id.013098, 3pp.
57. The Cherenkov Telescope Array Large Size Telescope. Ambrosi, G. et al., (127 authors) 2013, in proc. of the 33rd International Cosmic Ray Conference (ICRC2013), Rio de Janeiro (Brazil) (arXiv:1307.4565).
58. CTA contributions to the 33rd International Cosmic Ray Conference (ICRC2013) CTA Consortium, Abril, O. et al., 2013, in proc. of the 33rd International Cosmic Ray Conference (ICRC2013), Rio de Janeiro (Brazil) (arXiv:1307.2232).
59. Follow-up observations of the Crab pulsar with MAGIC and re-analysis of archival data. Saito, T. Y., Dazzi, F., Giavitto, G., Hirotani, K., Klepser, S., Lopez, M., Nakajima, D., Schweizer, T., Zanin, R., MAGIC Collaboration, 2012, in proc. of 5th International Meeting on High Energy Gamma-Ray Astronomy. AIP Conference Proceedings, Volume 1505, pp. 305-308.
60. VHE gamma-ray measurements of the Crab nebula and pulsar by MAGIC. Giavitto, G., Klepser,

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61. Luminosity evolution of rotation-powered pulsars. K. Hirotani, 2013, in proc. of the 4th Fermi Symposium, Monterey, California, U. S. A. eds. N. Omodei, T. Brandt, C. Wilson-Hodge (arXiv:1303.3404).
  62. Theories of High Energy Emission from Pulsar Magnetospheres. K. Hirotani, 2011, in proc. of the 11th Asian-Pacific Regional IAU Meeting, Chiang Mai, Thailand, eds. S. Komonjinda, Y. Kovalev, D. Ruffolo, NARIT Conference Series, vol. 1, 2012.
  63. High Energy Emission from Pulsar Outer Magnetospheres. K. Hirotani, 2007, in proc. of the First GLAST Symposium, Stanford, U. S. A., eds. S.~Ritz, P.~Michelson, C. Meegan, AIP Conference Proc. 921, 399-400
  64. Pulsar observations with the MAGIC Telescope. Lopez, M., Otte, N., Aliu, E., Bednarek, W., Contreras, J. L., Hirotani, K., Rissi, M. 2007, in proc. of the First GLAST Symposium, Stanford, U.~S.~A., 2007, eds. S.~Ritz, P.~Michelson, C.~Meegan, AIP Conference Proc. 921, 407-408
  65. Particle Acceleration in Pulsar Magnetospheres: A Hybrid Solution of Inner and Outer Gap Models. K. Hirotani, 2007, in proc. of the 363. WE-Heraeus Seminar on Neutron Stars and Pulsars Physikzentrum Bad Honnef, Germany, eds. W.Becker, H.H.Huang, MPE Report 291, 104—107
  66. Particle acceleration in pulsar magnetospheres. P. C. Hsu, K. Hirotani, H. K. Chang, 2007, in proc. of the 363. WE-Heraeus Seminar on Neutron Stars and Pulsars Physikzentrum Bad Honnef, Germany, eds. W.Becker, H.H.Huang, MPE Report 291, 141-144
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  68. High energy emission from pulsars: Outer gap scenario. K. Hirotani, 2005, in proc. of the 35th COSPAR Scientific Assembly, *Advances in Space Research*, 35, 1085-1091
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  70. Gamma-ray Emission from Outer-gap Accelerators: Formation of Power-law Spectrum. K. Hirotani, A. K. Harding, S. Shibata, 2002, in proc. of the International Conference on Pulsars, AXPs, and SGRs Observed with BeppoSAX and Other Observatories, ed. G.~Cusumano, E.~Massaro, T.~Mineo, (Roma, Italy: Aracne Editrice) 103--108, ISBN 88-7999-514-6
  71. Gamma-ray emission from Outer-Gap of pulsar magnetosphere. J. Takata, S. Shibata, K. Hirotani, 2002, in proc. of University of Tokyo Workshop 2002 on The Universe viewed in Gamma-Rays, eds. Enomoto, R., Mori, M., Yanagita, S. (astro-ph/0212056)
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79. Gamma-ray Emission from Middle-aged Pulsars. K. Hirotani, 1999, in ASCA Sympo. 4, *Astron. Achr.*, 320 (Berlin:) 364
80. Self-consistent Model for Pair Production Cascade in a Pulsar Outer Magnetosphere. K. Hirotani, S. Shibata, 1998, in *Neutron Stars and Pulsars*, ed. N. Shibazaki et al. (Tokyo: Univ. Acad. Press)
81. Plasma Supply due to Pair Production Cascade in a Black Hole Magnetosphere. K. Hirotani, I. Okamoto 1997, in *Observational Plasma Astrophysics: Five Years of YOHKOH and Beyond*, ed. T. Watanabe et al. (Dordrecht, the Netherlands: Kluwer Acad. Publ.), 155--160.
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84. Plasma Heating due to Wave Absorption in Accretion Disks. K. Hirotani, 1995, in *Physics of Accretion Disks - Advection, Radiation and Magnetic Fields*, ed. S. Kato, S. Inagaki, S. Mineshige, J. Fukue (Amsterdam: Gordon and Breach Sci. Publ.), 323-326.
85. Activity of Rotating Magnetospheres in AGNs: Collimated Propagation of MHD Waves near a Black Hole. K. Hirotani, A. Tomimatsu, 1995, in proc. of 17th Texas Symposium on Relativistic Astrophysics and Cosmology, ed. H. Bohringer et al. (New York: Ann. New York Acad. of Sci. vol 759), 542-545
86. Highly Variable Magnetohydrodynamic Accretion onto a Black Hole. K. Hirotani, A. Tomimatsu, 1994, in proc. of 7th Marcel Grossmann Meeting on General Relativity, ed. R. T. Jantzen, G. M. Keiser (Singapore: World Sci. Publ.), 1285-1286.
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  91. TIME VARIATION OF MHD ACCRETION ONTO A BLACK HOLE. K. Hirovani, M. Takahashi, A. Tomimatsu, 1992, in 4th International Toki conference on Plasma physics and controlled nuclear fusion, ed. T. D. Guyenne, J. J. Hunt (Noordwijk, the Netherlands: ESA Publ. div), 363-366.
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