

# Publication List

Hsiang-Kuang Chang, September 2011

## A. Papers in journals covered by SCI

48. Detection and imaging of the Crab nebula with the Nuclear Compton Telescope  
M. S. Bandstra, E. C. Bellm, S. E. Boggs, D. Perez-Becker, A. Zoglauer, **H.-K. Chang**,  
J.-L. Chiu, J.-S. Liang, Y.-H. Chang, Z.-K. Liu, W.-C. Hung, M.-H. A. Huang, S. J. Chiang,  
R.-S. Run, C.-H. Lin, M. Amman, P. N. Luke, P. Jean, C. B. Wunderer  
*Astrophysical Journal*, 738:8 (2011)
47. Millisecond dips in the 2007-09 RXTE/PCA lightcurve of Sco X-1 and one possible  
occultation event  
**H.-K. Chang**, C.-Y. Liu, K.-T. Chen  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 411, 427 (2011)
46. Alfvén seismic vibrations of crustal solid-state plasma in quaking paramagnetic neutron  
star  
Bastrukov, S.; Molodtsova, I.; Takata, J.; **Chang, H.-K.**; Xu, R.-X.  
*Physics of Plasmas*, 17, 112114 (2010)
45. Alfvén node-free vibrations of white dwarf in the model of solid star with toroidal  
magnetic field  
I. Molodtsova, S. I. Bastrukov, K.-T. Chen, **H.-K. Chang**  
*Astrophysics and Space Science*, 327, 1 (2010)
44. Self-gravitating astrophysical mass with singular central density vibrating in fundamental  
mode  
S. I. Bastrukov, **H.-K. Chang**, E.-H. Wu, I. V. Molodtsova  
*Modern Physics Letters A*, 24, 3257 (2009)
43. Neptune migration models with one extra-planet  
L.-W. Yeh, **H.-K. Chang**  
*Icarus*, 204, 330 (2009)
42. Frequency spectrum of toroidal Alfvén mode in a neutron star with Ferraro's form of  
nonhomogeneous poloidal magnetic field  
S. I. Bastrukov, **H.-K. Chang**, I. V. Molodtsova, E.-H. Wu, G.-T. Chen, S.-H. Lan  
*Astrophysics and Space Science*, 323, 235 (2009)
41. Surface optical response of the core-shell structured nanoparticle  
Bastrukov S.I., Lai P.-Y., I.V. Molodtsova, **H.-K. Chang**, D.V. Podgany:  
*Surface Review and Letters*, 16, 5 (2009)

40. The Data Readout System of the Nuclear Compton Telescope (NCT)  
Wei-Che Hung, Yuan-Hann Chang, Chih-Hsun Lin, Steven E. Boggs, **Hsiang-Kuang Chang**, Mark S. Bandstra, Eric C. Bellm, Jeng-Lun Chiu, Jau-Shian Liang, Zong-Kai Liu, Daniel Perez-Becker, Cornelia B. Wunderer, Andreas Zoglauer, Ming-Huey Huang, Mark Amman, and Paul N. Luke  
*IEEE Transactions on Nuclear Science*, 56, 2303 (2009)
39. Overview of the Nuclear Compton Telescope  
E. C. Bellm, S. E. Boggs, M. S. Bandstra, J. D. Bowen, D. Perez-Becker, C. B. Wunderer, A. Zoglauer, M. Amman, P. N. Luke, **H.-K. Chang**, J.-L. Chiu, J.-S. Liang, Y.-H. Chang, Z.-K. Liu, W.-C. Hung, C.-H. Lin, M. A. Huang, P. Jean  
*IEEE Transactions on Nuclear Science*, 56, 1250 (2009)
38. Characterizing and Correcting the Cross-Talk Effect on Depth Measurement in the NCT Detectors  
Z.-K. Liu, Y.-H. Chang, S. E. Boggs, M. S. Bandstra, E. C. Bellm, J. D. Bowen, D. Perez-Becker, C. B. Wunderer, A. Zoglauer, M. Amman, P. N. Luke, **H.-K. Chang**, J.-L. Chiu, J.-S. Liang, C.-H. Lin, W.-C. Hung  
*IEEE Transactions on Nuclear Science*, 56, 1210 (2009)
37. Non-thermal emissions from outer magnetospheric accelerators of middle-aged pulsars  
J. Takata, **H.-K. Chang**  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 392, 400 (2009)
36. Torsional Nodeless Vibrations of Quaking Neutron Star Restored by Combined Forces of Shear Elastic and Magnetic Field Stresses  
S. I. Bastrukov, G.-T. Chen, **H.-K. Chang**, I. V. Molodtsova, D. V. Podgainsy  
*Astrophysical Journal*, 690, 998 (2009)
35. Millisecond Dip Events in the 2007 RXTE/PCA Data of Sco X-1 and the TNO size distribution  
C.-Y. Liu, **H.-K. Chang**, J.-S. Liang, S.-K. King  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY (Letters)*, 388, L44 (2008)
34. Elasticity of nuclear medium as a principal macrodynamical promoter of electric pygmy dipole moment  
S. Bastrukov, I. Molodtsova, D. Podgainsy, S. Misicu, **H.-K. Chang**  
*Physics Letters B*, 664, 258 (2008)
33. Periodicity Search of Possible X-ray Counterparts to Radio-quiet Gamma-ray Pulsar Candidates  
L. C.-C. Lin, **H.-K. Chang**  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 387, 729 (2008)
32. Eigenfrequency of nodeless elastic vibrations locked in the crust of quaking neutron stars

- S. Bastrukov, **H.-K. Chang**, G.-T. Chen, I. Molodtsova  
*Modern Physics Letters A*, 23, 477 (2008)
31. Particle Acceleration and Non-thermal Emission in Pulsar Outer Magnetospheric Gaps  
J. Takata, **H.-K. Chang**, S. Shibata  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 386, 748 (2008)
30. Pulse Profiles, Spectra and Polarization Characteristics of Non-thermal Emissions from the Crab-like Pulsars  
J. Takata, **H.-K. Chang**  
*Astrophysical Journal*, 670, 677 (2007)
29. Torsional shear oscillations in the neutron star crust driven by restoring force of elastic stresses  
S. Bastrukov, **H.-K. Chang**, J. Takata, G.-T. Chen, I. Molodtsova  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 382, 849 (2007)
28. The Phase-resolved High Energy Spectrum of the Crab Pulsar  
J. J. Jia, A. P. S. Tang, J. Takata, **H.-K. Chang**, K. S. Cheng  
*Advances in Space Research*, 40, 1425 (2007)
27. The Nuclear Compton Telescope (NCT) project – Scientific Goals and Expected Sensitivity  
**H.-K. Chang**, S. Boggs, Y.-H. Chang  
*Advances in Space Research*, 40, 1281 (2007)
26. Spheroidal and Torsional Modes of Quasistatic Shear Oscillations in the Solid Globe Models of Nuclear Physics and Pulsar Astrophysics  
S. Bastrukov, **H.-K. Chang**, S. Misicu, I. Molodtsova, D. Podgany  
*International Journal of Modern Physics A*, 22, 3261 (2007)
25. Millisecond Dips in the RXTE/PCA Light Curve of Sco X-1 and TNO Occultations  
**H.-K. Chang**, J.-S. Liang, C.-Y. Liu, S.-K. King  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 378, 1287 (2007)
24. The Applications of the MHD Alfvén Wave Model for kHz Quasi-periodic Oscillations  
C.M. Zhang, H. X. Yin, Y. H. Zhao, **H.-K. Chang**, L.M. Song  
*Astronomische Nachrichten*, 328, 491 (2007)
23. Polarization of High-Energy Emissions from the Crab Pulsar  
J. Takata, **H.-K. Chang**, K. S. Cheng  
*Astrophysical Journal*, 656, 1044 (2007)
22. Measuring Neutron Star Mass and Radius with Three Mass-Radius Relations  
C.M. Zhang, H. X. Yin, Y. Kojima, **H.-K. Chang**, R.X. Xu, X.D. Li, B. Zhang, B. Kiziltan  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 374, 232 (2007)

21. Occultation of X-rays from Scorpius X-1 by Small Trans-Neptunian Objects  
**H.-K. Chang**, S.-K. King, J.-S. Liang, P.-S. Wu, L. C.-C. Lin, C.-J. Chiu  
*Nature*, 442, 660 (2006)
20. A Two-dimensional Electrodynamical Outer Gap Model for Gamma Ray Pulsars:  
Gamma-ray Spectrum  
J. Takata, S. Shibata, K. Hirotani, **H.-K. Chang**  
*MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*, 366, 1310 (2006)
19. Periodicity Search in the X-ray Data of RX J0007.0+7302  
L. C.-C. Lin, **H.-K. Chang**  
*Astrophysics and Space Science*, 297, 361 (2005)
18. Thermal Flux Fractions of Anomalous X-ray Pulsars RX J170849-400910 and 4U 0142+61  
**H.-K. Chang**  
*Chinese Journal of Physics*, 42, 135 (2004)
17. Electrostatic Corrections to the Equation of State for a Fully Ionized Hydrogen Atmosphere  
of Magnetic Neutron Stars  
**H.-K. Chang**  
*Chinese Journal of Physics*, 40, 395 (2002)
16. Determining the Magnetic Inclination of PSR B0656+14 from its Thermal X-ray Emission  
**H.-K. Chang**  
*Chinese Journal of Physics*, 39, 319 (2001)
15. X-ray Timing Analysis of PSR B1951+32 with ASCA and RXTE Data  
**H.-K. Chang**, T.-F. Guo  
*Chinese Journal of Physics*, 38, 429 (2000)
14. A Study of Sunspots with Phase Time and Travel Time of P-mode Waves in Acoustic  
Imaging  
D.-Y. Chou, M.-T. Sun, **H.-K. Chang**  
*Astrophysical Journal*, 532, 622 (2000)
13. In Search of Emerging Flux underneath the Solar Surface with Acoustic Imaging  
**H.-K. Chang**, D.-Y. Chou, M.-T. Sun  
*Astrophysical Journal (Letters)*, 526, L53 (1999)
12. Determining Emission Location and Mechanisms of High Energy Emission from Pulsars --  
the Role of INTEGRAL  
**H.-K. Chang**, T. Guo, M.-C. Liang, C. Ho  
*Astrophysical Letters and Communications*, 38, 53 (1999)
11. Acoustic Imaging in Helioseismology

- D.-Y. Chou, **H.-K. Chang**, M.-T. Sun, B. LaBonte, H.-R. Chen, S.-J. Yeh, the TON team  
*Astrophysical Journal*, 514, 979 (1999)
10. Rossi X-ray Timing Explorer Observation of PSR B0656+14  
**H.-K. Chang**, C. Ho  
*Astrophysical Journal*, 510, 404 (1999)
  9. Probing Solar Active Regions with the Phase Information of Acoustic Imaging  
H.-R. Chen, D.-Y. Chou, **H.-K. Chang**, M.-T. Sun, S.-J. Yeh, B. LaBonte, the TON team  
*Astrophysical Journal (Letters)*, 501, L139 (1998)
  8. Ambient Acoustic Imaging in Helioseismology  
**H.-K. Chang**, D.-Y. Chou, B. LaBonte, the TON team  
*Nature*, 389, 825 (1997)
  7. RXTE Observation of PSR B1951+32  
**H.-K. Chang**, C. Ho  
*Astrophysical Journal (Letters)*, 479, L125 (1997)
  6. Optical Pulse Polarization of the Crab Pulsar  
K. Chen, **H.-K. Chang**, C. Ho  
*Astrophysical Journal*, 471, 967 (1996)
  5. The Soft Spectrum of PSR B1509-58  
**H.-K. Chang**, K. Chen, C. Ho  
*Astronomy and Astrophysics Supplement*, 120, C81 (1996)
  4. Magnetic Inverse Compton Scattering above Polar Caps  
**H.-K. Chang**  
*Astronomy and Astrophysics*, 301, 456 (1995)
  3. Pulsar Radio Emission  
**H.-K. Chang**, W. Kundt  
*Astrophysics and Space Science*, 209, 313 (1993)
  2. Gamma-Ray Bursts from Nearby Neutron Stars  
W. Kundt, **H.-K. Chang**  
*Astrophysics and Space Science*, 200, 151 (1993)
  1. Pulsar Nebulae  
W. Kundt, **H.-K. Chang**  
*Astrophysics and Space Science*, 193, 145 (1992)

## **B. Papers not covered by SCI**

24. Introduction to MIOSOTYS: a multiple-object, high-speed photometer

I Chun Shih, Alain Doressoundiram, Yannick Boissel, Françoise Roques, Frédéric Dauny, Paul Felenbok, Andree Fernandez, Jean Guerin, **Hsiang-Kuang Chang**, Chih-Yuan Liu  
Ground-based and Airborne Instrumentation for Astronomy III. Edited by McLean, Ian S.;  
Ramsay, Suzanne K.; Takami, Hideki. Proceedings of the SPIE, Volume 7735, pp.  
773546-773546-7 (2010)

23. Preliminary results from the Spring 2010 balloon campaign of the Nuclear Compton Telescope

Chiu, J.-L., Bellm, E., Boggs, S., **Chang, H.-K.**, Chang, Y.-H., Huang, M., Amman, M.,  
Bandstra, M., Hung, W.-C., Liang, J.-S., Lin, C.-H., Liu, Z.-K., Luke, P., Perez-Becker, D.,  
Run, R.-S., Wunderer, C., and Liu, Z.-K., Bandstra, M., Perez-Becker, D., Zoglauer, A.  
Optics+Photonics Conference Record, 2010 SPIE (2010)

22. The 2010 balloon campaign of the Nuclear Compton Telescope

Bellm, E. C., Chiu, J.-L., Boggs, S., **Chang, H.-K.**, Chang, Y.-H., Huang, M., Amman, M.,  
Bandstra, M., Hung, W.-C., Jean, P., Liang, J.-S., Lin, C.-H., Liu, Z.-K., Luke, P. N.,  
Perez-Becker, D., Run, R.-S., and Zoglauer, A.  
Space Telescopes and Instrumentation 2010: Ultraviolet to Gamma Ray. Edited by Arnaud,  
Monique; Murray, Stephen S.; Takahashi, Tadayuki. Proceedings of the SPIE, Volume 7732,  
pp. 773224-773224-9 (2010)

21. Ground calibrations of Nuclear Compton Telescope

Chiu, J.-L., Liu, Z.-K., Bandstra, M., Bellm, E., Liang, J.-S., Perez-Becker, D., Zoglauer, A.,  
Boggs, S., **Chang, H.-K.**, Chang, Y.-H., Huang, M., Amman, M., Chiang, S.-J., Hung,  
W.-C., Lin, C.-H., Luke, P., Run, R.-S., and Wunderer, C.  
Space Telescopes and Instrumentation 2010: Ultraviolet to Gamma Ray. Edited by Arnaud,  
Monique; Murray, Stephen S.; Takahashi, Tadayuki. Proceedings of the SPIE, Volume 7732,  
pp. 77324H-77324H-9 (2010)

20. The Nuclear Compton Telescope (NCT): a status report after 2009 balloon flight

Ming-Huey A. Huang, Mark Amman, Mark E. Bandstra, Eric Bellm, Steven E. Boggs,  
Jason D. Bowen, **Hsiang-Kuang Chang**, Yuan-Hann Chang, Shueng-Jung Chiang,  
Jeng-Lun Chiu, Pierre Jean, Jau-Shian Liang, Chih-Hsun Lin, Zong-Kai Liu, Paul N. Luke,  
Daniel Perez-Becker, Ray-Shine Run, Cornelia B. Wunderer, Andreas Zoglauer  
in PROCEEDINGS OF THE 31st ICRC (2009)

19. Overview of the Nuclear Compton Telescope (NCT)

ZONG-KAI LIU, YUAN-HANN CHANG, WEI-CHE HUNG, STEVEN E. BOGGS,  
MARK S. BANDSTRA, ERIC E. BELLM, DANIEL PEREZ-BECKER, CORNELIA B.  
WUNDERER, ANDREAS ZOGLAUER, MARK AMMAN, PAUL N. LUKE,  
**HSIANG-KUANG CHANG**, JENG-LUN CHIU, JAU-SHIAN LIANG, CHIH-HSUN  
LIN, MINGHUEY A. HUANG, RAY-SHINE RUN, SHUENG-JUNG CHIANG and  
PIERRE JEAN  
in [ASTROPARTICLE, PARTICLE AND SPACE PHYSICS, DETECTORS AND  
MEDICAL PHYSICS APPLICATIONS, Proceedings of the 11th Conference], 785-789  
(2009)

18. Energy, depth calibration, and imaging capability of nuclear compton telescope  
Chiu, J.-L., Liu, Z.-K., Bandstra, M., Perez-Becker, D., Bellm, E., Zoglauer, A., Boggs, S., **Chang, H.-K.**, Chang, Y.-H., Huang, M., Amman, M., Hung, W.-C., Liang, J.-S., Lin, C.-H., Luke, P., Run, R.-S., and Wunderer, C.  
in [Nuclear Science Symposium Conference Record (NSS/MIC), 2009 IEEE], 472 –476 (2009).
17. Efficiency and polarimetric calibration of the nuclear compton telescope  
Bellm, E. C., Chiu, J.-L., Perez-Becker, D., Liang, J.-S., Zoglauer, A., Bandstra, M. S., Liu, Z.-K., Boggs, S. E., **Chang, H.-K.**, Chang, Y.-H., Huang, M. A., Amman, M., Hung, W.-C., Jean, P., Lin, C.-H., Luke, P. N., Run, R.-S., and Wunderer, C. B.  
in [Nuclear Science Symposium Conference Record (NSS/MIC), 2009 IEEE], 444 –448 (2009).
16. The spring 2009 balloon flight of the nuclear Compton telescope  
Bandstra, M., Bellm, E., Chiu, J.-L., Liang, J.-S., Liu, Z.-K., Perez-Becker, D., Zoglauer, A., Boggs, S., **Chang, H.-K.**, Chang, Y.-H., Huang, M.-H., Amman, M., Chiang, S. J., Hung, W.-C., Jean, P., Lin, C.-H., Luke, P., Run, R.-S., and Wunderer, C.  
in [Nuclear Science Symposium Conference Record (NSS/MIC), 2009 IEEE], 2131 –2139 (2009).
15. Non-thermal emissions from outer magnetospheric accelerator of pulsars  
J. Takata, **H.-K. Chang**  
*HIGH ENERGY GAMMA-RAY ASTRONOMY: Proceedings of the 4th International Meeting on High Energy Gamma-Ray Astronomy. AIP Conference Proceedings*, Volume 1085, pp. 237-240 (2008)
14. The upcoming long duration balloon flight of the Nuclear Compton Telescope  
M. E. Bandstra, E. Bellm, S. E. Boggs, J. D. Bowen, D. Perez-Becker, C. B. Wunderer, A. Zoglauer, M. Amman, P. N. Luke, **H.-K. Chang**, J.-L. Chiu, J.-S. Liang, Y.-H. Chang, Z.-K. Liu, C.-H. Lin, M. A. Huang, P. Jean  
*2007 IEEE Nuclear Science Symp. Conf. Rec.*, vol. 4, pp. 2532–2537 (2007)
13. A three-dimensional model for the high-energy emissions from the Crab pulsar  
J. Takata, **H.-K. Chang**, K.S. Cheng  
*THE FIRST GLAST SYMPOSIUM. AIP Conference Proceedings*, v. 921, page 423 (2007)
12. Study on Polarization of High-Energy Photons from the Crab Pulsar  
J. Takata, **H.-K. Chang**, K.S. Cheng  
*Proceedings of the 363rd Heraeus Seminar on Neutron Stars and Pulsars, Bad Honnef*, page 120 (astro-ph/0701255) (2006)
11. Particle Acceleration in Pulsar Magnetospheres  
P.-C. Hsu, K. Hirotani, **H.-K. Chang**  
*Proceedings of the 363rd Heraeus Seminar on Neutron Stars and Pulsars, Bad Honnef*, page 141 (astro-ph/0612677) (2006)

10. Computation of Neutron Star Surface Emission Spectra for Arbitrary Magnetic Field Directions without Diffusion Approximation  
L.-W. Yeh, G.-T. Chen, **H.-K. Chang**  
*Proceedings of the 363rd Heraeus Seminar on Neutron Stars and Pulsars, Bad Honnef*, page 137 (astro-ph/0612676) (2006)
9. The BeppoSAX Phase-resolved Spectra of the Anomalous X-ray Pulsar RX J170849-400910  
**H.-K. Chang**  
*Proceedings of the 8th IAU Asian-Pacific Regional Meeting, Tokyo*, page 317 (2002)
8. ASCA and RXTE Upper Limits to Pulsed Emissions from PSR B1951+32  
**H.-K. Chang**, T.-F. Guo  
*Proceedings of Pulsar Astronomy - 2000 and Beyond, Bonn, ASP Conference Series*, 202, page 327 (2000)
7. Acoustic Imaging and Subsurface Structure of Solar Active Regions  
**H.-K. Chang**, D.-Y. Chou, H.-R. Chen, the TON team  
*Proceedings of ASPE98, Potsdam, ASP Conf. Series*, 184, page 171 (1998)
6. Dissipation and Emission of p-mode in the Quiet Sun from Acoustic Imaging with the TON Data  
M.-T. Sun, D.-Y. Chou, **H.-K. Chang**, H.-R. Chen, S.-J. Yeh, B. LaBonte, the TON team  
*Proceedings of SOHO 6 / GONG 98 Workshop, Boston*, page 657 (1998)
5. Subsurface Acoustic Images of Solar Active Regions in Different Frequencies with TON Data  
**H.-K. Chang**, D.-Y. Chou, H.-R. Chen, B. LaBonte, M.-T. Sun, S.-J. Yeh, the TON team  
*Proceedings of SOHO 6 / GONG 98 Workshop, Boston*, page 621 (1998)
4. Results of Acoustic Imaging with the TON Data  
D.-Y. Chou, **H.-K. Chang**, H.-R. Chen, B. LaBonte, M.-T. Sun, S.-J. Yeh, the TON team  
*Proceedings of SOHO 6 / GONG 98 Workshop, Boston*, page 597 (1998)
3. Acoustic Imaging and Subsurface Absorption Structure of Sunspots  
**H.-K. Chang**, D.-Y. Chou, B. LaBonte, the TON team  
*Proceedings of IAU Symp. 185*, page 219 (1997)
2. Spectral Studies of Magnetic Photon Splitting in the March 5 Event and SGR 1806-20  
**H.-K. Chang**, K. Chen, E. E. Fenimore, C. Ho  
*Proceedings of the 3rd GRB Workshop, Huntsville, AIP Conf. Proc. 384*, page 921 (1996)
1. Nearby Neutron Stars as the Sources of the Gamma-Ray Bursts  
W. Kundt, **H.-K. Chang**  
*AIP Conf. Proc. 307*, page 596 (1994)

