

Education

- **Ph.D. in Physics**, University of Delaware, May, 2002
- **M.S. & B.S. in space physics**, Peking University, Beijing, China, July 1998, July, 1995

Awards

- 2011: China National Funds for Distinguished Young Scientists (Jie Qing)

Professional Experience

- 2016 - present: Professor, Harbin Institute of Technology, Shenzhen
- Nov. 2005 - 2016: Professor, fellow of the one-hundred talented scientist plan, State Key Laboratory of Space Weather, Center for Space Science and Applied Research, Chinese Academy of Sciences.
- May 2002 - Oct. 2005: Research Associate, Dept. of Physics & Space Sciences, Florida Institute of Technology, with Prof. Hamid K. Rassoul, Prof. Ming Zhang and Prof. Joseph R. Dwyer. On cosmic ray, acceleration and transport processes in the heliosphere
- Jan. 2002 - April 2002: Post Doctoral Fellow, Bartol Research Institute, University of Delaware. On particle transport theory and simulation of MHD turbulence.

Research Interests

- Theoretical/Computational research and data analysis in astrophysics and space physics, especially in solar energetic particles and galactic cosmic ray, acceleration, transport processes in the space, space plasma physics
- space weather research

Publications list

- “Numerical modeling of magnetohydrodynamic activity in the Swarthmore spheromak experiment”, V. S. Lukin, G. Qin, W. H. Matthaeus and M. R. Brown, *Phys. Plasmas*, Volume 8, Number 5, 2001.
- “Energetic particles and Magnetohydrodynamic Activity in the Swarthmore spheromak experiment”, G. Qin, V. S. Lukin, C. D. Cothran, M. R. Brown and W. H. Matthaeus, *Phys. Plasmas*, Volume 8, Number 11, 2001.
- “Subdiffusion transport of charged particles perpendicular to the large scale magnetic field”, G. Qin, W. H. Matthaeus and J. W. Bieber, *Geophys. Res. Lett.*, 29(4), 1048, 2002.

- “Energetic particles from three-dimensional magnetic reconnection events in the Swarthmore Spheromak Experiment”, M.R. Brown, C.D. Cothran, M. Landreman, D. Schlossberg, W.H. Matthaeus, G. Qin, V.S. Lukin, and T. Gray, *Phys. Plasmas*, Volume 9, Number 5, Part 2, 2077-2084, 2002.
- “Perpendicular transport of charged particles in composite model turbulence: recovery of diffusion”, G. Qin, W. H. Matthaeus and J. W. Bieber, *Astrophys. J.*, 578L, 2002.
- “Nonlinear Collisionless Perpendicular Diffusion of Charged Particles”, W.H. Matthaeus, G. Qin, J.W. Bieber and G.P. Zank, *Astrophys. J.*, 590L, 53, 2003
- “Transport in random magnetic fields: diffusion, subdiffusion and nonlinear second diffusion”, G. Qin, W. H. Matthaeus and J. W. Bieber, *Proceedings of Solar Wind Ten, AIP* 679, 664, 2003
- “Nonlinear Guiding Center Theory of Perpendicular Diffusion: General Properties and Comparison with Observation”, J. W. Bieber, W. H. Matthaeus, A. Shalchi and G. Qin, *Geophys. Res. Lett.*, 31, 10.1029/2004GL020007, 2004
- “Interplanetary transport mechanisms of solar energetic particles”, G. Qin, M. Zhang, J.R. Dwyer and H.K. Rassoul, *Astrophys. J.*, 609, 1076, 2004
- “Nonlinear Parallel and Perpendicular Diffusion of Charged Cosmic Rays in Weak Turbulence”, A. Shalchi, J.W. Bieber, W.H. Matthaeus, and G. Qin, *Astrophys. J.*, 616, 617, 2004
- “The model dependence of solar energetic particle mean free paths under weak scatterings”, G. Qin, M. Zhang, J.R. Dwyer, H.K. Rassoul and G.M. Mason, *Astrophys. J.*, 627(1), 562, 2005
- “Parallel diffusion of charged particles in strong 2D turbulence”, G. Qin, W.M. Matthaeus, J.W. Bieber, *Astrophys. J.*, 640(1), L103, 2006
- “The effect of adiabatic cooling on the fitted parallel mean free path of solar energetic particles”, G. Qin, M. Zhang, and J.R. Dwyer, *J. Geophys. Res.*, 111, A08101, doi:10.1029/2005JA011512, 2006
- “Ulysses observations of Jovian relativistic electrons in the interplanetary space near Jupiter: Determination of perpendicular particle transport coefficients and their energy dependence”, M. Zhang, G. Qin, H. Rassoul, B. McKibben, C. Lopate and B. Heber, *Planet. Space Sci.*, 55, Issues 1-2, 12-20, January, 2007
- “Nonlinear Parallel Diffusion of Charged Particles: Extension to the Nonlinear Guiding Center Theory”, G. Qin, *Astrophys. J.*, 656(1), 217, 2007
- “Effect of flux tubes in solar wind on the diffusion of energetic particles”, G. Qin, and G. Li, *Astrophys. J.*, 682, L129, 2008

- “Propagation of Solar Energetic Particles in 3-dimensional Interplanetary Magnetic Fields”, M. Zhang, G. Qin and H. Rassoul, *Astrophys. J.*, 692, 109, 2009
- “Prediction of the shock arrival times with SEP observations”, G. Qin, M. Zhang, and H.K. Rassoul, *J. Geophys. Res.*, 114, A09104, doi:10.1029/2009JA014332, 2009
- “Pitch angle diffusion coefficients of charged particles from computer simulations”, G. Qin and A. Shalchi, *Astrophys. J.*, 707, 61, 2009
- “Random Walk of Magnetic Field Lines: Analytical Theory versus Simulations”, A. Shalchi and G. Qin, *Astrophys. Space Sci.*, 330, 279, 2010
- “A Simple Analytical Method to Determine Solar Energetic Particles Mean Free Path”, H.-Q. He and G. Qin, *Astrophys. J.*, 730, 46, 2011
- “Effect of current sheets on the solar wind magnetic field power spectrum from the Ulysses observation: from Kraichnan to Kolmogorov scaling”, G. Li, B. Miao, Q. Hu, and G. Qin, *Phys. Rev. Lett.*, 106, 125001, 2011
- “Propagation of Solar Energetic Particles in 3-dimensional Interplanetary Magnetic Fields: In View of Characteristics of Sources”, H.-Q. He, G. Qin and M. Zhang, *Astrophys. J.*, 734, 74, 2011
- “An effect of perpendicular diffusion on the anisotropy of solar energetic particles from unconnected sources”, G. Qin, H.-Q. He, and M. Zhang, *Astrophys. J.*, 738, 28, 2011
- “A realistic solar wind model with current sheets”, G. Li, and G. Qin, Proceedings of 5th Astrophysics Numerical Conference, Numerical Modeling of Space Plasma Flows: ASTRONUM-2010, Nikolai V. Pogorelov, Edouard Audit, and Gary P. Zank, eds, *ASP Conference Series*, 444, 117, 2011
- “Modeling the effect of current sheets on the power spectrum of the solar wind magnetic field using a cell model”, G. Li, G. Qin, Q. Hu, and B. Miao, *Advances in Space. Res.*, 49, 1327, 2012
- “Numerical investigation of the influence of large turbulence scales on the parallel and perpendicular transport of cosmic rays”, G. Qin, and A. Shalchi, *Advances in Space. Res.*, 49, 1643, 2012
- “Using Soft X-ray observations to help the prediction of flare related interplanetary shocks arrival times at the Earth”, H.-L. Liu, and G. Qin, *J. Geophys. Res.*, 117, A04108, doi:10.1029/2011JA017220, 2012
- “Effect of perpendicular diffusion on energetic particles accelerated by the interplanetary coronal mass ejection shock”, Y. Wang, G. Qin, and M. Zhang, *Astrophys. J.*, 752, 37, 2012
- “Despiking of spacecraft energetic proton flux to study galactic cosmic ray modulation”, G. Qin, L.-L. Zhao, and H.-C. Chen, *Astrophys. J.*, 752, 138, 2012

- “Streamline Generation Code for particle dynamics description in numerical models of turbulence”, S. Dalena, P. Chuychai, R. L. Mace, A. Greco, G. Qin, and W. H. Matthaeus, *Computer Physics Communications*, 183, 1974, 2012
- “TRANSPORT OF SOLAR ENERGETIC PARTICLES ACCELERATED BY ICME SHOCKS: REPRODUCING THE RESERVOIR PHENOMENON”, G. Qin, Y. Wang, M. Zhang, and S. Dalla, *Astrophys. J.*, 766, 74, 2013
- “An observation-based GCR model of heavy nuclei: measurements from CRIS onboard ACE spacecraft”, L.-L. Zhao, and G. Qin, *J. Geophys. Res.*, 118, 1837-1848, doi:10.1002/jgra.50235, 2013
- “The role of the Kubo number in two-component turbulence”, G. Qin, and A. Shalchi, *Phys. Plasmas*, 20, 092302, doi: 10.1063/1.4821026, 2013
- “Pitch-Angle Dependent Perpendicular Diffusion of Energetic Particles Interacting With Magnetic Turbulence”, G. Qin, and A. Shalchi, *Applied Physics Research*, 6, 1, 1, doi: 10.5539/apr.v6n1p1, 2014
- “Modulation of Galactic cosmic rays during the unusual solar minimum between cycles 23 and 24”, L.-L. Zhao, G. Qin, M. Zhang, and B. Heber, *J. Geophys. Res.*, 119, 1493–1506, doi:10.1002/2013JA01955
- “Detailed numerical investigation of 90° scattering of energetic particles interacting with magnetic turbulence”, G. Qin, and A. Shalchi, *Phys. Plasmas*, 21, 042906, 2014
- “The Modification of the Nonlinear Guiding Center Theory”, G. Qin, and L.-H. Zhang, *Astrophys. J.*, 787, 12, 2014
- “A numerical simulation of solar energetic particle dropouts during impulsive events”, Y. Wang, G. Qin, M. Zhang, and S. Dalla, *Astrophys. J.*, 789, 157, 2014
- “Perpendicular Diffusion of Energetic Particles: Numerical Test of the Theorem on Reduced Dimensionality”, G. Qin, and A. Shalchi, *Phys. Plasmas*, 22, 012905, doi: 10.1063/1.4905862, 2015
- “Estimation of the release time of solar energetic particles near the Sun”, Y. Wang, and G. Qin, *Astrophys. J.*, 799, 111, 2015
- “Simulations of the spatial and temporal invariance in the spectra of gradual solar energetic particle events”, Y. Wang, and G. Qin, *Astrophys. J.*, 806, 252, 2015
- “Improvements of the shock arrival times at the Earth model STOA”, H.-L. Liu, and G. Qin, *J. Geophys. Res.*, 120, 5290-5297, doi: 10.1002/2015JA021072, 2015
- “Simulations of a gradual solar energetic particle event observed by Helios 1, Helios 2, and IMP 8 simultaneously”, G. Qin, and Y. Wang, *Astrophys. J.*, 809, 177, 2015

- “The geomagnetic cutoff rigidities at high latitudes during different solar wind and geomagnetic conditions”, W. Chu, and G. Qin, *Annales Geophysicae*, 34, 45-53, 2016
- “Effect of adiabatic focusing on diffusion of energetic charged particles”, Y. Wang, and G. Qin, *Astrophys. J.*, 820, 61, 2016
- “Numerical Test of Different Approximations Used in the Transport Theory of Energetic Particles”, G. Qin, and A. Shalchi, *Astrophys. J.* 823, 23, 2016
- “A small mission concept to the Sun-Earth Lagrangian L5 point for innovative solar, heliospheric and space weather science”, B. Lavraud, Y. Liu, K. Segura, J. He, G. Qin, M. Temmer, JC Vial, M Xiong et al., *JASTP*, 146, 171, 2016
- “A study of cosmic ray flux based on the noise in raw CCD data from solar images”, Z.-N. Shen, and G. Qin, *J. Geophys. Res.*, 121, 10712, DOI: 10.1002/2016JA023376, 2016
- “Numerical simulations of solar energetic particle event timescales associated with ICMEs”, S.-Y. Qi, G. Qin, and Y. Wang, *Research in Astronomy and Astrophysics*, 17, 33, 2017
- “MAGNETIC FIELD LINE RANDOM WALK IN TWO-DIMENSIONAL TURBULENCE WITH DYNAMICAL MODEL”, J.-F. Wang, G. Qin, Q. M. Ma, T. Song, and S. B. Yuan, *Phys. Plasmas*, 24, 082901, doi:10.1063/1.4994844, 2017
- “Numerical simulations of particle acceleration at interplanetary quasi-perpendicular shocks”, F.-J. Kong, G. Qin, and L.-H. Zhang, *Astrophys. J.*, 845, 43, 2017
- “Perpendicular Diffusion Coefficient of Cosmic Rays: The Presence of Weak Adiabatic Focusing”, J. F. Wang, G. Qin, Q. Ma, T. Song, and S. B. Yuan, *Astrophys. J.*, 845, 112, 2017
- “Modulation of Galactic Cosmic Rays in the Inner Heliosphere, Comparing with PAMELA Measurements”, G. Qin, and Z.-N. Shen, *Astrophys. J.*, 846, 56, 2017
- “Model of energy spectrum parameters of ground level enhancement events in solar cycle 23”, S. S. Wu, and G. Qin, *J. Geophys. Res.*, 123, 76, 2018
- “Modulation of galactic cosmic rays in the inner heliosphere over solar cycles”, Z. N. Shen, and G. Qin, *Astrophys. J.*, 854, 137, 2018
- “Effects of shock and turbulence properties on electron acceleration”, G. Qin, F.-J. Kong, and L.-H. Zhang, *Astrophys. J.*, 860, 3, 2018