

Academic Staff Resume

Name: Cui Jun

Title: Distinguished Guest Professor

Space Science Institute

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Academic Qualification:

Ph.D. in Astronomy, University of Arizona, AZ, USA, 2008

M.Sc. in Astrophysics, National Astronomical Observatories, Chinese Academy of Sciences, Beijing, China, 2001

B.Sc. in Physics, Beijing University, Beijing, China, 1997

Teaching Area

Graduate courses:

Atmospheric Physics

Research Area

Space Physics

Solar System Astrophysics

Working Experience

Jul. 2015 to present: Distinguished Guest Professor, Space Science Institute, Macau University of Science and Technology

Mar. 2014 to present: Deputy Director, Key Laboratory of Lunar and Deep Space Exploration, Chinese Academy of Sciences

Mar. 2014 to present: Full Research Scientist, National Astronomical Observatories

Oct. 2011 to Mar. 2014: Full Research Scientist, School of Astronomy and Space Sciences, Nanjing University

Aug. 2010 to Oct. 2011: Associate Research Scientist, National Astronomical Observatories

Aug. 2008 to Jul. 2010: Postdoctoral Researcher, Department of Physics, Imperial College of London

May 2008 to Aug. 2008: Postdoctoral Researcher, Department of Planetary Sciences, University of Arizona

Academic Publication

Journal Articles:

1, Cui, J., Xia, X.-Y., Deng, Z.-G., Mao, S., and Zou, Z.-L., "Statistical properties of Ultraluminous IRAS galaxies from an HST imaging survey", 2001, Astron. J., 122, 63-82

- 2, Cui, J., Bechtold, J., Ge, J., and Meyer, D.M., "Molecular hydrogen in the damped Ly α absorber of Q1331+170", 2005, *Astrophys. J.*, 633, 649-663
- 3, Meiring, J.D., Kulkarni, V.P., Khare, P., Bechtold, J., York, D.G., Cui, J., Lauroesch, J.T., Crotts, A.P.S., and Osamu, N., "Elemental abundance measurements in low-redshift damped Lyman α absorbers", 2006, *MNRAS*, 370, 43-62
- 4, Vuitton, V., Yelle, R.V., and Cui, J., "Formation and distribution of benzene on Titan", 2008, *J. Geophys. Res.*, 113, E05007
- 5, Yelle, R.V., Cui, J., and Müller-Wodarg, I.C.F., "Methane escape from Titan's atmosphere", 2008, *J. Geophys. Res.*, 113, E10003
- 6, Cui, J., Yelle, R.V., and Volk, K., "Distribution and escape of molecular hydrogen in Titan's thermosphere and exosphere", 2008, *J. Geophys. Res.*, 113, E10004
- 7, Müller-Wodarg, I.C.F., Yelle, R.V., Cui, J., and Waite Jr., J.H., "Horizontal structures and dynamics of Titan's thermosphere", 2008, *J. Geophys. Res.*, 113, E10005
- 8, Cui, J., Yelle, R.V., Vuitton, V., Waite Jr., J.H., Kasprzak, W.T., Gell, D., Niemann, H.B., Müller-Wodarg, I.C.F., Borggren, N., Fletcher, G.G., Patrick, E.L., Raaen, E., and Magee, B.A., "Analysis of Titan's upper atmosphere from Cassini Ion Neutral Mass Spectrometer measurements", 2009, *Icarus*, 200, 581-615
- 9, Ågren, K., Wahlund, J.-E., Garnier, P., Modolo, R., Cui, J., Galand, M., and Müller-Wodarg, I.C.F., "The ionospheric structure of Titan", 2009, *Planet. Space Sci.*, 57, 1821-1827
- 10, Cui, J., Galand, M., Yelle, R.V., Vuitton, V., Wahlund, J.-E., Lavvas, P.P., Müller-Wodarg, I.C.F., Cravens, T.E., Kaprzak, W.T., and Waite Jr., J.H., "Diurnal variations of Titan's ionosphere", 2009, *J. Geophys. Res.*, 114, A06310
- 11, Wahlund, J.-E., Galand, M., Müller-Wodarg, I.C.F., Cui, J., Yelle, R.V., Crary, F.J., Mandt, K.E., Magee, B.A., Waite Jr., J.H., Young, D.T., Coates, A.J., Ågren, K., André M., Eriksson, A.I., Cravens, T.E., Vuitton, V., Gurnett, D.A., and Kurth, W.S., "On the amount of heavy molecular ions in Titan's ionosphere", 2009, *Planet. Space Sci.*, 57, 1857-1865
- 12, Cui, J., Galand, M., Yelle, R.V., Wahlund, J.-E., Ågren, K., Waite Jr., J.H., and Dougherty, M.K., "Ion transport in Titan's upper atmosphere", 2010, *J. Geophys. Res.*, 115, A06314
- 13, Galand, M., Yelle, R.V., Cui, J., Wahlund, J.-E., Vuitton, V., Wellbrock, A., and Coates, A.J., "Ionization sources in Titan's deep ionosphere", 2010, *J. Geophys. Res.*, 115, A07312

- 14, Cravens, T.E., Richard, M., Ma, Y.-J., Bertucci, C., Luhmann, J., Ledvina, S., Robertson, I.P., Wahlund, J.-E., Ågren, K., Cui, J., Müller-Wodarg, I.C.F., Waite Jr., J.H., Dougherty, M.K., Bell, J., and Ulusen, D., "Dynamical and magnetic field time constants for Titan's ionosphere - empirical estimates", 2010, *J. Geophys. Res.*, 115, A08319
- 15, Yelle, R.V., Vuitton, V., Lavvas, P.P., Klippenstein, S.J., Smith, M.A., Horst, S.M., and Cui, J., "Formation of NH₃ and CH₂HN in Titan's upper atmosphere", 2010, *Faraday Discuss.*, 147, 31-49
- 16, Cui, J., Galand, M., Coates, A.J., Zhang, T., and Müller-Wodarg, I.C.F., "Suprathermal electron spectra in the Venus ionosphere", 2011, *J. Geophys. Res.*, 116, A04321
- 17, Wang, X.-D., Zong, Q.-G., Wang, J.-S., Cui, J., Rème, H., Dandouras, I., Aoustin, C., Tan, X., Shen, J., Ren, X., Liu, J.-J., Zuo, W., Su, Y., Wen, W.-B., Wang, F., Fu, Q., Mu, L.-L., Wang, X.-Q., Geng, L., Zhang, Z.-B., Liu, J.-Z., Zhang, H.-B., Li, C.-L., and Ouyang, Z.-Y., "Detection of M/Q=2 pickup ions in the plasma environment of the Moon: The trace of Exospheric H₂+" 2011, *Geophys. Res. Lett.*, 38, L14204
- 18, Wang, J., Deng, J.-S., Cui, J., Cao, L., Qiu, Y.-L., and Wei, J.-Y., "Lunar exosphere influence on lunar-based near-ultraviolet astronomical observations", 2011, *Adv. Space Res.*, 48, 1927-1934
- 19, Coates, A.J., Wahlund, J.-E., Ågren, K., Edberg, N., Cui, J., Wellbrock, A., and Szego, K., "Recent results from Titan's ionosphere", 2011, *Space Sci. Rev.*, 162, 85-111
- 20, Cui, J., Yelle, R.V., Müller-Wodarg, I.C.F., Lavvas, P.P., and Galand, M., "The implications of the H₂ variability in Titan's exosphere", 2011, *J. Geophys. Res.*, 116, A11324
- 21, Wang, X.-Q., Cui, J., Wang, X.-D., Liu, J.-J., Zhang, H.-B., Zuo, W., Su, Y., Wen, W.-B., Rème, H., Dandouras, I., Aoustin, C., Wang, M., Tan, X., Shen, J., Wang, F., Fu, Q., Li, C.-L., and Ouyang, Z.-Y., "The solar wind interactions with lunar magnetic anomalies: A case study of the Chang'E-2 plasma data near the Serenitatis antipode", 2012, *Adv. Space Res.*, 50, 1600-1606
- 22, Cui, J., Yelle, R.V., Strobel, D.F., Müller-Wodarg, I.C.F., Snowden, D.S., Koskinen, T.T., & Galand, M., "The CH₄ structure in Titan's upper atmosphere revisited", 2012, *J. Geophys. Res.*, 117, E11006
- 23, Vigren, E., Galand, M., Yelle, R.V., Cui, J., Wahlund, J.-E., Ågren, K., Lavvas, P.P., Müller-Wodarg, I.C.F., Strobel, D.F., Vuitton, V., & Bazin, A., "On the thermal electron balance in Titan's sunlit upper atmosphere", 2013, *Icarus*, 223, 234-251
- 24, Cui, J., Lian, Y., & Müller-Wodarg, I.C.F., "Compositional effects in Titan's thermospheric gravity waves", 2013, *Geophys. Res. Lett.*, 40, 43-47

- 25, Snowden, D.S., Yelle, R.V., Cui, J., Wahlund, J.-E., Ågren, K., & Edberg, N., "The thermal structure of Titan's upper atmosphere, I: Temperature profiles from Cassini INMS observations", 2013, *Icarus*, 226, 552-582
- 26, Cui, J., Yelle, R.V., T. Li, D.S. Snowden, & Müller-Wodarg, I.C.F., "Density waves in Titan's upper atmosphere", 2014, *J. Geophys. Res.*, 119, 490-518
- 27, Cui, J., Galand, M., Zhang, S. J., Vigren, E., & Zou, H., "The electron thermal structure in the dayside Martian ionosphere implied by the MGS radio occultation data", 2015, *J. Geophys. Res.*, 120, 278-286
- 28, Vigren, E., Galand, M., Yelle, R. V., Wellbrock, A., Coates, A. J., Snowden, D., Cui, J., Lavvas, P., Edberg, N. J. T., Shebanits, O., Wahlund, J.-E., Vuitton, V., & Mandt, K.E., "Ionization balance in Titan's nightside ionosphere", 2015, *Icarus*, 248, 539-546
- 29, Cui, J., Galand, M., Yelle, R. V., Wei, Y., & Zhang, S.-J., "Day-to-night transport in the Martian ionosphere: Implications from total electron content measurements", 2015, *J. Geophys. Res.*, 120, 2333-2346
- 30, Zhang, S. J., Cui, J., Guo, P., Li, J. L., Ping, J. S., Jian, N. C., & Zhang, K. F., "Martian electron density profiles retrieved from Mars Express dual-frequency radio occultation measurements", 2015, *Adv. Space Res.*, 55, 2177-2189
- 31, Sagnières, L.B.M., Galand, M., Cui, J., Lavvas, P.P., Vigren, E., Vuitton, V., Yelle, R.V., Wellbrock, A., & Coates, A.J., "Influence of local ionization on ionospheric densities in Titan's upper atmosphere", 2015, *J. Geophys. Res.*, 120, in press
- 32, Cui, J., Galand, M., Yelle, R.V., Wei, Y., & Zhang, S.-J., "Day-to-night transport in the Martian ionosphere: Implications from total electron content measurements", 2015, *J. Geophys. Res.*, 120, 2333-2346
33. Zou, H., Ye, Y.-G., Wang, J.-S., Nielsen, E., Cui, J., & Wang, X.-D., "A method to estimate the neutral atmospheric density near the ionospheric main peak of Mars", 2016, *J. Geophys. Res.*, 121, 3464-3475
34. Vigren, E., Galand, M., Wellbrock, A., Coates, A.J., Cui, J., Edberg, N.J.T., Lavvas, P.P., Sagnieres, L., Snowden, D.S., Vuitton, V., & Wahlund, J.-E., "Suprathermal electrons in Titan's sunlit ionosphere: Model-observation comparisons," 2016, *Astrophys. J. Lett.*, in press
35. Cui, J., Cao, Y.-T., Lavvas, P.P., & Koskinen, T.T., "The variability of HCN in Titan's upper atmosphere implied by the Cassini Ion Neutral Mass Spectrometer measurements", 2016, *Astrophys. J. Lett.*, 826, L5

Books & Book Chapters:

1, Strobel, D.F., & Cui, J., "Titan's upper atmosphere/exosphere, escape processes and rates", 2013, in "*Titan: Interior, Surface, Atmosphere and Space Environment*", eds. Müller-Wodarg, I.C.F., Griffith, C.A., Lellouch, E., & Cravens, T.E., Cambridge University Press, Cambridge, UK

Conference Papers:

Research Projects

Acoustic-gravity waves in the atmospheres of terrestrial planets, FDCT, Macau (MOP 2,230,000)

The formation mechanisms of the Martian ionosphere, NSFC, China (RMB 4,000,000)

Velocity distribution functions and escape mechanisms of atmospheric neutrals near Titan's exobase, NSFC, China (RMB 800,000)

Statistical analysis of the Solar Wind interactions with the lunar magnetic anomalies, NSFC, China (RMB 700,000)

One hundred talents' program, CAS, China (RMB 2,000,000)

Strategic Priority Research Program, CAS, China (RMB 600,000)

Transport processes in planetary upper atmospheres, NSFC, China (RMB 150,000)

Professional Certification and Awards

China National Funds for Distinguished Young Scientists

European Space Agency Venus Express Outstanding Award

Professional Society Membership