KYUNGGUK MIN, Ph.D.

October 25, 2026

Associate Professor
Department of Astronomy and Space Science
Chungnam National University
99 Daehak-ro, Yuseong-gu
Daejeon 34134
South Korea

ORCiD: 0000-0002-2095-8529
: (+82) 42-821-5463
: www.kyungg.uk
@: min@kyungg.uk
Social: @kyungguk.com

EDUCATION

Sep., 2008–May, 2013
Ph.D. in Applied Physics (Space Physics)
New Jersey Institute of Technology, New Jersey NJ, USA
Dissertation: **Min, "A statistical study of plasmawaves and energetic particles in the outer magnetosphere"**.
Committee: Andrew J. Gerrard, Jeongwoo Lee (co-chairs), Jay R. Johnson, Dale E. Gary, and Martin Schaden.

2000–2004 Chungnam National University, Daejeon, South Korea
Department of Astronomy and Space Science
Bachelor of Science (B.S.) in Astronomy and Space Science

EMPLOYMENT

Sep., 2024– **Chungnam National University**, Daejeon, South Korea
Department of Astronomy and Space Science
Associate Professor

Sep., 2019–Aug., 2024
Chungnam National University, Daejeon, South Korea
Department of Astronomy and Space Science
Assistant Professor

Dec., 2018–Aug., 2019
Korea Astronomy and Space Science Institute, Daejeon, South Korea
Space Science Group
Senior Research Scientist

Feb., 2018–Nov., 2018
Space Science Institute, Boulder CO, USA
Affiliate Research Scientist

May, 2016–July, 2018
The Johns Hopkins University Applied Physics Laboratory, Laurel MD,

USA
Postdoctoral Fellow

July, 2013–April, 2016
Auburn University, Auburn AL, USA
Postdoctoral Fellow
Supervisor: Kaijun Liu

GRANTS, FELLOWSHIPS, AND PRIZES

Grants (third-party)

2026–2029 National Research Foundation of Korea (NRF)–우수핵심(유형A) (Grant No. RS-2026-25486873).
On the power gap generation of banded chorus waves in the Earth's magnetosphere (PI).

2025–2030 Participating Member of **Global - Learning & Academic research Institution for Master's and PhD students, and Postdocs (G-LAMP) Program**.
National Research Foundation of Korea (NRF) (No. RS-2025-25442707).

2025–2026 ISEE International Joint Research Program (ISEE2025-02-007-21475).
Categorizing Banded Chorus Waves Using Arase Data (PI).

2020–2023 National Research Foundation of Korea (NRF) (Grant No. 2020R1C1C1009996).
Excitation and Propagation of Fast Magnetosonic Waves in the Magnetosphere and Their Role in Radiation Belt Electron Scattering (PI).

2020–2021 ISEE International Joint Research Program.
Understanding the Generation Process of Fast Magnetosonic Waves by Combining ERG Observations and PIC Simulations (PI).

2016–2018 NSF/GEM (Geospace Environment Modeling) Program (Grant No. AGS-1602388).
Collaborative Research: GEM Investigation of the Excitation and Propagation of Fast Magnetosonic Waves and Their Effect on Radiation Belt Electrons (PI).

2016–2018 NASA Heliophysics Supporting Research Program (Grant No. NNX16AM98G).
Investigating Proton Bernstein Instabilities in Space Plasmas (PI).

Grants (on-campus)

2024 Chungnam National University Internal Research Program.
On the Generation of Banded Chorus Waves in the Inner Magnetosphere (PI).

2021 Chungnam National University Internal Research Program.
On the Energization of Thermal Ions Driven by Fast Magnetosonic Waves in the Inner Magnetosphere (PI).

2020 Chungnam National University Internal Research Program.
Investigation of Oxygen Ion Cyclotron Harmonic Waves Using Multi-dimensional Hybrid PIC Simulations (PI).

2019 New Hire Research Support Program (Chungnam National University).
Generation of Fast Magnetosonic Waves in Realistic Magnetospheric Configurations Using Particle-in-cell Simulations (PI).

Awards and Recognitions

2022 두진 우주과학자상 awarded by 한국우주과학회.

2021 제31회 과학기술우수논문상 awarded by 한국과학기술단체총연합회.
Paper Title: **Min and Liu, "Linear Instability and Saturation Characteristics of Magnetosonic Waves along the Magnetic Field Line"**.

2019 **Editors' Citation for Excellence in Refereeing** (Geophysical Research Letters), American Geophysical Union.

2015 **NASA Van Allen Probes Mission Group Achievement Award**, NASA Headquarter.

Teaching and Advising

Teaching

Chungnam National University

2019–2021, 2025–2026 (fall)
1154–3012: Space Science and Practice (undergrad 3/2/2)
Textbook: 태양–지구계 우주환경 by 안병호 (ISBN: 9788958325956)

2020–2026 (fall)
1154–2005: Mathematics for Astronomy 2 and Exercise (undergrad 3/2/2)
Textbook: *Mathematical Methods in the Physical Sciences* by Mary L. Boas
Lecture Note: https://cnu-teaching.gitlab.io/math-2

2020–2026 (spring)
1154–2002: Mathematics for Astronomy 1 and Exercise (undergrad 3/2/2)
Textbook: *Mathematical Methods in the Physical Sciences* by Mary L. Boas
Lecture Note: https://cnu-teaching.gitlab.io/math-1

2025 (fall) **2448–5036: Space Physics 2** (grad-level 3/3/0)
Textbook: *Fundamentals of Plasma Physics* by JA Bittencourt
(DOI: https://doi.org/10.1007/978-1-4757-4030-1)
Demo Code: https://gitlab.com/cnu-teaching/space-physics-2.git

2024 (fall), 2025–2026 (spring)
2444-500*: Seminar in Earth Environmental & Space Convergence Sciences
(grad-level 3/3/0)

2025 (spring) **2209–5035: Space Physics 1** (grad-level 3/3/0)
Textbook: *Fundamentals of Plasma Physics* by JA Bittencourt
(DOI: https://doi.org/10.1007/978-1-4757-4030-1)

2020–2021, 2023–2025 (spring)
1153–2010: Electromagnetism 1 (undergrad 3/3/0)
Textbook: *Introduction to Electrodynamics* by David J. Griffiths
Lecture Note: https://cnu-teaching.gitlab.io/em-1

2020, 2023–2025 (fall)
1154–3023: Electromagnetism 2 (undergrad 3/3/0)
Textbook: *Introduction to Electrodynamics* by David J. Griffiths
Lecture Note: https://cnu-teaching.gitlab.io/em-2

2021–2024, 2026 (spring)
1153–2001: Modern Physics (undergrad 3/3/0)
Textbook: *Concepts of Modern Physics* by Arthur Beiser
Lecture Note: https://cnu-teaching.gitlab.io/modern-physics

2022 (fall) **1154–3007: Numerical Analysis and Practice** (undergrad 3/2/2)
Lecture Note: https://cnu-teaching.gitlab.io/numerical-analysis

2021 (fall), 2023 (spring), 2026 (fall)
2209–5034: Plasma Physics (grad-level 3/3/0)
Textbook: *Basic Space Plasma Physics* by Baumjohann and Treumann
(DOI: https://doi.org/10.1142/p015)

2022 (fall) **2207–5002: Advanced Data Analysis for Space and Geology** (grad-level 3/3/0)

2022 (spring) **2209–5044: Planetary Magnetospheres** (grad-level 3/3/0)

2020 (fall) **2209–5012: Computational Methods in Astronomy 2** (grad-level 3/3/0)
Textbook: *Spectral Methods in MATLAB* by Nick Trefethen
(DOI: https://doi.org/10.1137/1.9780898719598)

2020 (spring) **2209–5036: Space Physics 2** (grad-level 3/3/0)
Textbook: *Fundamentals of Plasma Physics* by JA Bittencourt
(DOI: https://doi.org/10.1007/978-1-4757-4030-1)

2019 (fall) **1154–4016: Astronomy Seminar 2** (undergrad 3/3/0)

2019 (fall) **2209–5035: Space Physics 1** (grad-level 3/3/0)
Textbook: *Fundamentals of Plasma Physics* by JA Bittencourt
(DOI: https://doi.org/10.1007/978-1-4757-4030-1)

Advising and Supervision

CHUNGNAM NATIONAL UNIVERSITY

2026 (fall)– **Eun-Bi Yi**
Graduate student (Master program).

2026 (fall)– **Ji-Eun Choi**
Graduate student (Master program).

2026 (spring)–
Chae-Jeong Hong
Graduate student (Master program).

2025– **Minwook Kang**
Graduate student (Master program).

2024– **Seokmin Song**
Graduate student (Ph.D. program).

2024–2025 **Chae-Jeong Hong**
Undergrad internship.

2023–2024 **Minwook Kang**
Undergrad internship.

Sep., 2024–Feb., 2025
Kunja Lasany Arfin
Master program in Astronomy and Space Science.

2023–2024 **Yongho Lee**
M.S. in Astronomy and Space Science.
(Now in the graduate program at Utah University)

2020–2023 **Ly Thi Kim Cuc**
Ph.D. program in Astronomy and Space Science (course work finished).

2020–2022 **Jimin Hong**
M.S. in Astronomy and Space Science.

2019–2021 **Jiwoo Kim**
M.S. in Astronomy and Space Science.

Teaching Assistantships

NEW JERSEY INSTITUTE OF TECHNOLOGY

2008–2012 Grading homework, proctoring exams, and running lab sessions.

RESEARCH

Research Interest and Expertise

- Understanding plasma waves and wave-particle interactions in the Earth's magnetosphere and their effects on ring current and radiation belts.
- Satellite data analysis of plasma waves and energetic ion/electron distributions.
- Kinetic instabilities and particle-in-cell simulations of waves and wave propagation in dipole-like Earth's magnetic field.

Additional Research Experience

2011 **Research Assistant**, New Jersey Institute of Technology.
Van Allen Probes' RBSPICE Data Analysis.
Supervisor: Jeongwoo Lee, Andrew Gerrard, and Louis Lanzerotti.

Open-Source Code/Library

`git` repos GitLab: https://gitlab.com/kyungguk
GitHub: https://github.com/kyungguk1
Codeberg: https://codeberg.org/kyungguk
Space Plasma: https://gitlab.com/space_plasma
CNU Teaching: https://gitlab.com/cnu-teaching

`DispersionSolver`
Kinetic Plasma Dispersion Solver in a homogeneous, magnetized plasma with a uniform background magnetic field.
https://gitlab.com/space_plasma/DispersionSolver

`mirror-pic_1d`
One-dimensional particle-in-cell code in mirror magnetic field geometry.
https://gitlab.com/space_plasma/mirror-pic_1d

`toy-pic_1d` A toy project for one-dimensional particle-in-cell code in uniform magnetic field geometry.
https://gitlab.com/space_plasma/toy-pic_1d

`PICInDriftShell`
2-D particle-in-cell code on drift-shell surface in dipole geometry.
https://gitlab.com/kyungguk/PICInDriftShell

`NASACDF` A simple Mathematica plugin for reading NASA CDF data files.
https://gitlab.com/space_plasma/NASACDF

`HDF5Kit` **HDF5Kit** is a thin layer on top of the `hdf5` C library, abstracting a subset of frequently used APIs with C++.
https://gitlab.com/space_plasma/lib/HDF5Kit

`ParallelKit`

ParallelKit provides an abstraction layer for intra- and inter-process data parallelism for high-performance numerical computations.
https://gitlab.com/space_plasma/lib/ParallelKit

Skills

language Korean (native), English (intermediate)

programming
C, C++, Objective-C, Fortran90, IDL, Matlab, Mathematica, Python, PHP, LaTeX, Parallel programming using the C++ concurrency library, OpenMP, and MPI.

SERVICE

Peer Review

2025 **Member of the Korean Astronomical Society**
Solar-Space Environment Section.

2018–present **Member of the Korean Space Science Society**
Solar-Space Environment Section.

2009–present **Member of the American Geophysical Union**
Magnetospheric Physics Section.

2013–present **Reviewer** (journals)
Journal of Geophysical Research (Space Physics), Geophysical Research Letters, Space Weather, AGU Monograph Series, Physics of Plasmas, Journal of the Korean Physical Society, Journal of Astronomy and Space Sciences.

2014–present **Reviewer** (proposals)
NASA Heliophysics Guest Investigator Program (2014), NASA Postdoctoral Program (2014, 2015), Czech Science Foundation (2014).

2023 **Reviewer** (preceedings)
The 15th Asia Pacific Physics Conference.

Departmental Service and Committees

2026– 국제교류위원회 (International Affairs Committee)
College of Natural Science, Chungnam Natural University.

2024 (fall)–2026 (fall)
Rotating Chair
Department of Astronomy and Space Science,
Chungnam Natural University.

2021, 2023, 2024
수시 입학사정관 (College Admission Committee)
College of Natural Science, Chungnam Natural University.

2020–2023 기획발전위원회
College of Natural Science, Chungnam Natural University.

Organization of Workshops and Working Groups

2026 LOC on United Nations/Republic of Korea Workshop on the International Space Weather Initiative: *AI-Enabled Space Weather for Global Cooperation and Capacity Building*
September 7–11, 2026, Seoul, Republic of Korea.

2024 Session on Asia Oceania Geosciences Society (AOGS) Meeting
ST14: Plasma Waves in the Terrestrial and Planetary Space Environment and *ST28: Precipitation of Energetic Particles: Magnetospheric Drivers and Their Impact on the Ionosphere*.

2025 Member of program committee on (Topic 3) Plasma Fundamentals & Space Plasmas for the 4th International Fusion and Plasma Conference iFPC.
Helped organize plenary and parallel sessions.
Chair of Plenary Session 8.

2024 Session on Asia Oceania Geosciences Society (AOGS) Meeting
ST15: Nonlinear Processes Related to Plasma Waves and Wave-particle Interactions in Terrestrial and Planetary Magnetospheres.
Main Convener, with Alexander Drozdov (University of California, Los Angeles), Longzhi Gan (Boston University), Miroslav Hanzelka (GFZ German Research Centre for Geosciences), and Kaijun Liu (Southern University of Science and Technology).

PUBLICATIONS

Google Scholar Profile **NASA ADS Library**

PHD THESIS

Min: A statistical study of plasmawaves and energetic particles in the outer magnetosphere **2013PhDT.....583M**

Kyungguk Min. "A statistical study of plasmawaves and energetic particles in the outer magnetosphere". PhD thesis. New Jersey Institute of Technology, Jan. 2013. URL: https://digitalcommons.njit.edu/dissertations/375/.

JOURNAL ARTICLES

Hong et al.: Statistical Investigation of the Effect of Coulomb Collisions on Thermodynamic Evolution of the Alfvénic Slow Wind **2026JKAS...59..225H**

Jimin Hong, Jungjoon Seough, and Kyungguk Min. "Statistical Investigation of the Effect of Coulomb Collisions on Thermodynamic Evolution of the Alfvénic Slow Wind". In: *Journal of Korean Astronomical Society* 59 (May 2026), pp. 225–237. DOI: 10.5303/JKAS.2026.59.1.225.

Kang et al.: Correlation Analysis Between Banded Chorus and Electron Density Enhancement Using Van Allen Probes Data **2026JGRA..13135130K**

Minuk Kang et al. "Correlation Analysis Between Banded Chorus and Electron Density Enhancement Using Van Allen Probes Data". In: *Journal of Geophysical Research (Space Physics)* 131.5, e2026JA035130 (May 2026), e2026JA035130. DOI: 10.1029/2026JA035130.

Karimova et al.: Anisotropic clumpy distribution of the inner Oort cloud comets implied by the Kreutz sungrazers **2026AdSpR..78.8458K**

Ulkar Karimova, Yu Yi, and Kyungguk Min. "Anisotropic clumpy distribution of the inner Oort cloud comets implied by the Kreutz sungrazers". In: *Advances in Space Research* 78.8 (Oct. 2026), pp. 8458–8481. DOI: 10.1016/j.asr.2026.08.009.

Karimova et al.: Soviet Lunar Science in Context: From Luna to Artemis **2026JASS...43..129K**

Ulkar Karimova, Yu Yi, and Kyungguk Min. "Soviet Lunar Science in Context: From Luna to Artemis". In: *Journal of Astronomy and Space Sciences* 43.3 (Sept. 2026), pp. 129–146. DOI: 10.5140/JASS.2026.43.3.129.

Min et al.: Statistical Analysis of Banded Chorus Spectral Features Using Van Allen Probes and Arase Data: Implication for Power Gap Formation 2026JGRA..13135684M

Kyungguk Min, Yoshizumi Miyoshi, Kaijun Liu, et al. "Statistical Analysis of Banded Chorus Spectral Features Using Van Allen Probes and Arase Data: Implication for Power Gap Formation". In: *Journal of Geophysical Research (Space Physics)* 131.8, e2026JA035684 (Aug. 2026), e2026JA035684. DOI: 10.1029/2026JA035684.

Y. Wang et al.: Parametric Study of Oxygen Ion Bernstein Instability: Effects of Shell-Distributed Oxygen Ions and Cool Heavy Ions 2026JGRA..13135246W

Yan Wang, Xinye Wang, et al. "Parametric Study of Oxygen Ion Bernstein Instability: Effects of Shell-Distributed Oxygen Ions and Cool Heavy Ions". In: *Journal of Geophysical Research (Space Physics)* 131.6, e2026JA035246 (June 2026), e2026JA035246. DOI: 10.1029/2026JA035246.

Yuan et al.: Characteristics and Generation of Upstream Ultra-low-frequency Waves at Quasi-parallel Shocks: Hybrid Simulations 2026ApJ..1004...71Y

Yi Yuan et al. "Characteristics and Generation of Upstream Ultra-low-frequency Waves at Quasi-parallel Shocks: Hybrid Simulations". In: *The Astrophysical Journal* 1004.1, 71 (June 2026), p. 71. DOI: 10.3847/1538-4357/ae6faf.

Min: Quantifying the role of electron plateau distribution on the chorus gap formation using one-dimension PIC simulations 2025AdSpR..75.2403M

Kyungguk Min. "Quantifying the role of electron plateau distribution on the chorus gap formation using one-dimension PIC simulations". In: *Advances in Space Research* 75.2 (Jan. 2025), pp. 2403–2424. DOI: 10.1016/j.asr.2024.10.002.

Min: Relativistic electron scattering by high-frequency EMIC waves: Test-particle results using self-consistently generated wave fields 2025AdSpR..76.2532M

Kyungguk Min. "Relativistic electron scattering by high-frequency EMIC waves: Test-particle results using self-consistently generated wave fields". In: *Advances in Space Research* 76.4 (Aug. 2025), pp. 2532–2546. DOI: 10.1016/j.asr.2025.06.014.

Min et al.: Linear analysis and PIC simulations of electron cyclotron harmonic instability driven by a subtracted-kappa velocity distribution 2025PhPl...32l2901M

Kyungguk Min, Yoshizumi Miyoshi, and Kaijun Liu. "Linear analysis and PIC simulations of electron cyclotron harmonic instability driven by a subtracted-kappa velocity distribution". In: *Physics of Plasmas* 32.12, 122901 (Dec. 2025), p. 122901. DOI: 10.1063/5.0305058.

K.-H. Kim et al.: Observation and Numerical Simulation of Cold Ions Energized by EMIC Waves 2024JGRA..12932361K

K.-H. Kim et al. "Observation and Numerical Simulation of Cold Ions Energized by EMIC Waves". In: *Journal of Geophysical Research (Space Physics)* 129.5, e2023JA032361 (May 2024), e2023JA032361. DOI: 10.1029/2023JA032361.

Min: Linear Theory Analysis and One-Dimensional Hybrid Simulations of High-Frequency EMIC Waves in a Dipole Magnetic Field 2024JGRA..12932387M

Kyungguk Min. "Linear Theory Analysis and One-Dimensional Hybrid Simulations of High-Frequency EMIC Waves in a Dipole Magnetic Field". In: *Journal of Geophysical Research (Space Physics)* 129.3, e2023JA032387 (Mar. 2024), e2023JA032387. DOI: 10.1029/2023JA032387.

Min et al.: On the Energy Coupling From Magnetosonic Waves to High-Frequency Electromagnetic Ion Cyclotron Waves: Statistical Analysis 2024JGRA..12932114M

Kyungguk Min and Qianli Ma. "On the Energy Coupling From Magnetosonic Waves to High-Frequency Electromagnetic Ion Cyclotron Waves: Statistical Analysis". In: *Journal of Geophysical Research (Space Physics)* 129.1, e2023JA032114 (Jan. 2024), e2023JA032114. DOI: 10.1029/2023JA032114.

Yao et al.: Evaluation of Particle Scattering by Oxygen Ion Cyclotron Harmonic Waves in the Inner Magnetosphere 2024GeoRL..5108261Y

Fei Yao et al. "Evaluation of Particle Scattering by Oxygen Ion Cyclotron Harmonic Waves in the Inner Magnetosphere". In: *Geophys. Res. Lett.* 51.6, e2024GL108261 (Mar. 2024), e2024GL108261. DOI: 10.1029/2024GL108261.

Jun et al.: Statistical Study of EMIC Waves and Related Proton Distributions Observed by the Arase Satellite 2023JGRA..12831131J

C. -W. Jun et al. "Statistical Study of EMIC Waves and Related Proton Distributions Observed by the Arase Satellite". In: *Journal of Geophysical Research (Space Physics)* 128.6, e2022JA031131 (June 2023), e2022JA031131. DOI: 10.1029/2022JA031131.

Kwon et al.: Energization of Cold Protons and Helium Ions by EMIC Waves in the Inner Magnetosphere: Hybrid Simulations 2023JGRA..12831240K

Jong-Woo Kwon et al. "Energization of Cold Protons and Helium Ions by EMIC Waves in the Inner Magnetosphere: Hybrid Simulations". In: *Journal of Geophysical Research (Space Physics)* 128.5, e2022JA031240 (May 2023), e2022JA031240. DOI: 10.1029/2022JA031240.

Min: Banded chorus generation by an electron shell distribution in an inhomogeneous magnetic field: 1D PIC simulations **2023PhPl...30a2904M**

Kyungguk Min. "Banded chorus generation by an electron shell distribution in an inhomogeneous magnetic field: 1D PIC simulations". In: *Physics of Plasmas* 30.1, 012904 (Jan. 2023), p. 012904. DOI: 10.1063/5.0127471.

Min: Detailed analysis of banded chorus gap formation by an electron shell distribution **2023PhPl...30h2902M**

Kyungguk Min. "Detailed analysis of banded chorus gap formation by an electron shell distribution". In: *Physics of Plasmas* 30.8, 082902 (Aug. 2023), p. 082902. DOI: 10.1063/5.0151855.

Richard E. Denton et al.: Models for magnetospheric mass density and average ion mass including radial dependence **2022FrASS...949684D**

Richard E. Denton et al. "Models for magnetospheric mass density and average ion mass including radial dependence". In: *Frontiers in Astronomy and Space Sciences* 9, 394 (Dec. 2022), p. 394. DOI: 10.3389/fspas.2022.1049684.

Min et al.: Unusual high frequency EMIC waves: Detailed analysis of EMIC wave excitation and energy coupling between EMIC and magnetosonic waves **2022AdSpR..69...35M**

Kyungguk Min, Jiwoo Kim, et al. "Unusual high frequency EMIC waves: Detailed analysis of EMIC wave excitation and energy coupling between EMIC and magnetosonic waves". In: *Advances in Space Research* 69.1 (Jan. 2022), pp. 35–47. DOI: 10.1016/j.asr.2021.07.039.

Song et al.: Analysis of the Tsyganenko Magnetic Field Model Accuracy during Geomagnetic Storm Times Using the GOES Data **2022JASS...39..159S**

Seok-Min Song and Kyungguk Min. "Analysis of the Tsyganenko Magnetic Field Model Accuracy during Geomagnetic Storm Times Using the GOES Data". In: *Journal of Astronomy and Space Sciences* 39.4 (Dec. 2022), pp. 159–167. DOI: 10.5140/JASS.2022.39.4.159.

Y. Wang et al.: Van Allen Probes Observations of Oxygen Ion Cyclotron Harmonic Waves: Statistical Study **2022GeoRL..4996825W**

Yan Wang, Kaijun Liu, et al. "Van Allen Probes Observations of Oxygen Ion Cyclotron Harmonic Waves: Statistical Study". In: *Geophys. Res. Lett.* 49.4, e96825 (Feb. 2022), e96825. DOI: 10.1029/2021GL096825.

Min et al.: Quasilinear Diffusion of Protons by Equatorial Magnetosonic Waves at Quasi-Perpendicular Propagation: Comparison With the Test-Particle Approach **2021JGRA..12629767M**

Kyungguk Min and Kaijun Liu. "Quasilinear Diffusion of Protons by Equatorial Magnetosonic Waves at Quasi-Perpendicular Propagation: Comparison With the Test-Particle Approach". In: *Journal of Geophysical Research (Space Physics)* 126.12, e29767 (Dec. 2021), e29767. DOI: 10.1029/2021JA029767.

Park et al.: 국내 우주환경 자료 보유 현황: 자기권국내 우주환경 자료 보유 현황: 자기권 Terrestrial Magnetospheric Observations and Models in Korea **2021JSTAp...1..178P**

Kyung Sun Park and Kyungguk Min. "국내 우주환경 자료 보유 현황: 자기권국내 우주환경 자료 보유 현황: 자기권 Terrestrial Magnetospheric Observations and Models in Korea". In: *Journal of Strain Analysis and Engineering Design* 1.2 (Aug. 2021), pp. 178–198. DOI: 10.52912/jsta.2021.1.2.178.

W. Y. Li et al.: Electron Bernstein waves driven by electron crescents near the electron diffusion region **2020NatCo..11..141L**

W. Y. Li et al. "Electron Bernstein waves driven by electron crescents near the electron diffusion region". In: *Nature Communications* 11, 141 (Jan. 2020), p. 141. DOI: 10.1038/s41467-019-13920-w.

Liu et al.: Excitation of Oxygen Ion Cyclotron Harmonic Waves in the Inner Magnetosphere: Hybrid Simulations **2020GeoRL..4790575L**

Kaijun Liu et al. "Excitation of Oxygen Ion Cyclotron Harmonic Waves in the Inner Magnetosphere: Hybrid Simulations". In: *Geophys. Res. Lett.* 47.20, e90575 (Oct. 2020), e90575. DOI: 10.1029/2020GL090575.

Min et al.: Linear Instability and Saturation Characteristics of Magnetosonic Waves along the Magnetic Field Line **2020JASS...37...85M**

Kyungguk Min and Kaijun Liu. "Linear Instability and Saturation Characteristics of Magnetosonic Waves along the Magnetic Field Line". In: *Journal of Astronomy and Space Sciences* 37.2 (June 2020), pp. 85–94. DOI: 10.5140/JASS.2020.37.2.85.

Min et al.: Two-Dimensional Hybrid Particle-in-Cell Simulations of Magnetosonic Waves in the Dipole Magnetic Field: On a Constant L-Shell **2020JGRA..12528414M**

Kyungguk Min, Kaijun Liu, Richard E. Denton, František Němec, et al. "Two-Dimensional Hybrid Particle-in-Cell Simulations of Magnetosonic Waves in the Dipole Magnetic Field: On a Constant L-Shell". In: *Journal of Geophysical Research (Space Physics)* 125.10, e28414 (Oct. 2020), e28414. DOI: 10.1029/2020JA028414.

Mousavi et al.: Mirror Instability Driven by Pickup Ions in the Outer Heliosheath 2020ApJ...901..167M

Ameneh Mousavi, Kaijun Liu, and Kyungguk Min. "Mirror Instability Driven by Pickup Ions in the Outer Heliosheath". In: *The Astrophysical Journal* 901.2, 167 (Oct. 2020), p. 167. DOI: 10.3847/1538-4357/abb1a1.

R. E. Denton et al.: Pitch Angle Scattering of Sub-MeV Relativistic Electrons by Electromagnetic Ion Cyclotron Waves 2019JGRA..124.5610D

R. E. Denton, L. Ofman, et al. "Pitch Angle Scattering of Sub-MeV Relativistic Electrons by Electromagnetic Ion Cyclotron Waves". In: *Journal of Geophysical Research (Space Physics)* 124.7 (July 2019), pp. 5610–5626. DOI: 10.1029/2018JA026384.

Min et al.: Equatorial Propagation of the Magnetosonic Mode Across the Plasmapause: 2-D PIC Simulations 2019JGRA..124.4424M

Kyungguk Min, František Němec, et al. "Equatorial Propagation of the Magnetosonic Mode Across the Plasmapause: 2-D PIC Simulations". In: *Journal of Geophysical Research (Space Physics)* 124.6 (June 2019), pp. 4424–4444. DOI: 10.1029/2019JA026567.

Boardsen et al.: Determining the Wave Vector Direction of Equatorial Fast Magnetosonic Waves 2018GeoRL..45.7951B

Scott A. Boardsen et al. "Determining the Wave Vector Direction of Equatorial Fast Magnetosonic Waves". In: *Geophys. Res. Lett.* 45.16 (Aug. 2018), pp. 7951–7959. DOI: 10.1029/2018GL078695.

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TALKS AND PRESENTATIONS

Conferences and Workshops

INVITED TALKS

2026 Kyungguk Min. "Origin of banded chorus: Observational test of nonlinear damping and ducting-induced mechanisms." In: Session *SG-3 EMIC [Chair: Chao Yue] 14:00-16:15, Oct. 13 [Hall D]* at *AAPPS-DPP 2026*, October 11–16, 2026, Busan Port International Exhibition & Convention Center (BPEX), Busan, Korea. https://www.aappsdpp.org/DPP2026/html/3contents/topical2026.html#SG

2026 Kyungguk Min. "Testing Banded Chorus Generation by a Parallel Electron Plateau Distribution Using 1D PIC Simulations." In: Session *[P-EM19] Dynamics of the Inner Magnetospheric System* at *JpGU-AGU Joint Meeting*, May 24–29, 2026, International Conference Hall, Chiba, Japan.

2025 Kyungguk Min. "Chorus waves in Earth's magnetosphere". In: Special session *Heliosphere: Basics and Frontiers* at *60th Korean Astronomical Society Spring Meeting*, April 9–11, 2025, Gyeongju Hwabaek International Convention Center, Korea.

2022 Kyungguk Min. "The effect of parallel electron plateau on the banded chorus spectral gap formation". In: *15th Asia Pacific Physics Conference (APPC)*, August 21–26, 2022, Virtual.

2020 Kyungguk Min and Kaijun Liu. "SG-I6: Particle-in-cell simulations of magnetosonic waves in the Earth's magnetic field". In: *4rd Asia-Pacific e-Conference on Plasma Physics (AAPPS-DPP2020)*, October 26–31, 2020, Virtual.

2019 Kyungguk Min and Kaijun Liu. "Potential Role of Mirror and Ion Bernstein Instabilities on Scattering of Pickup Ions in the Outer Heliosheath". In: *3rd Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2019)*, November 4–8, 2019, Crowne Plaza Hefei, Hefei, Anhui, China.

2015 Kyungguk Min. "UBK coordinates, particle tracing and L^* calculation". In: *Inner Magnetosphere Coupling (IMC) III*, 2015, LA CA, USA.

2014 Kyungguk Min, Jeongwoo Lee, K. Keika, and Wen Li "Specifying EMIC Wave Properties Based on THEMIS Data". In: *NSF-GEM Summer Workshop*, June 2014, Snowmass CO, USA.

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2026 Kyungguk Min, Minuk Kang, Kaijun Liu, & Yoshizumi Miyoshi "Correlation analysis between banded chorus and electron density enhancement using Van Allen Probes data". In: *AOGS 2026*, August 3–7, 2026, Fukuoka International Congress Center, Fukuoka, Japan.

2025 Kyungguk Min & Quanli Ma. "High-frequency EMIC Waves: Generation and Propagation, and Their Effect on Relativistic Electrons". In: *AOGS 2025*, July 27–August 1, 2025, Sands Expo & Convention Centre, Marina Bay Sands Singapore.

2024 Kyungguk Min. "Can a Parallel Electron Plateau Distribution Generate Chorus Band Gap? Parametric Analysis Using 1D PIC Simulations". In: *11th VERSIM Workshop*, September 30–October 4, 2024, Breckenridge, Colorado, USA.

2024 Kyungguk Min. "Hybrid simulation study of high-frequency H-band EMIC waves in the Earth's magnetosphere". In: *15th International Symposium for Space Simulations (ISSS-15)*, August 1–9, 2024, Max Planck Institute for Plasma Physics (IPP), Garching, Germany.

2024 Kyungguk Min and Qianli Ma. "Energy Coupling from Magnetosonic Waves to High-Frequency Electromagnetic Ion Cyclotron Waves: Statistical Analysis". In: *USNC-URSI National Radio Science Meeting (NRSM)*, January 9–13, 2024, Boulder CO, USA.

2022 Kyungguk Min. "PIC simulations of banded chorus generation due to parallel electron plateau". In: *10th VERSIM Workshop*, November 07–11, 2022, Sodankylä, Finland.

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2020 Kyungguk Min. "PIC Simulations of Magnetosonic Wave in the Dipole Magnetic Field: Equatorial Wave Confinement". In: *ERG Science and Space Weather Workshop*, January 13–15, 2020, NCU, Taiwan.

2017 Kyungguk Min, R. E. Denton, Kaijun Liu, S. P. Gary, and H. E. Spence. "A Possible Source for Oxygen Ion Cyclotron Harmonic Waves". In: *NSF-GEM Summer Workshop*, 2017, Norfolk VA, USA.

2016 Kyungguk Min, K. Takahashi, A. Y. Ukhorskiy, J. W. Manweiler, H. E. Spence, H. J. Singer, S. J. Claudepierre, B. A. Larsen, A. R. Soto-Chavez, and R. J. Cohen. "Second harmonic poloidal waves and energetic proton response: Van Allen Probes observation". In: *AGU Fall Meeting*, 2016, San Francisco, CA.

2015 Kyungguk Min, Kaijun Liu, and S. P. Gary. "Linear growth and nonlinear saturation of proton ring-driven instabilities in the inner magnetosphere: Linear theory and PIC simulations". In: *AGU Fall Meeting*, 2015, San Francisco CA, USA.

2013 Kyungguk Min, J. Bortnik, R. E. Denton, K. Takahashi, H. J. Singer, V. Angelopoulos, and K. H. Glassmeier. "Equatorial mass density distribution during two solar cycle minima — Magneto-seismology". In: *NSF-GEM Summer Workshop*, June 16–21, 2013, Snowmass CO, USA.

2012 Kyungguk Min, J. Bortnik, and Jeongwoo Lee. "A Novel Technique for Rapid L^* Calculation". In: *NSF-GEM Summer Workshop*, June 17–22, 2012, Snowmass CO, USA.

POSTER

2026 Minuk Kang, Kyungguk Min, and Chae-Woo Jun. "Statistical Analysis of He-Band EMIC Waves at Geosynchronous Orbit Observed by GK2A: Dependence on Solar Cycle and Geomagnetic Conditions". In: *United Nations/Korea International Space Weather Initiative (ISWI) 2026*, September 7–11, 2026, Glad Hotel, Seoul, South Korea.

2026 Kyungguk Min. "Relativistic Electron Scattering by High-Frequency EMIC Waves: Test-particle Results". In: *URSI-GASS 2026*, August 15–22, 2026, ICE Kraków Congress Centre, Kraków, Poland.

2026 Chaejeong Hong & Kyungguk Min. “Can Localized Density Ducts Generate Banded Chorus: Parametric Ray Tracing Analysis”. In: *AOGS 2026*, August 3–August 7, 2026, Fukuoka International Congress Center, Fukuoka, Japan.

2026 Kyungguk Min. “Application of Subtracted-kappa Distribution to Electron Cyclotron Harmonic Modes”. In: *The 17th International Solar Wind Conference (Solar Wind 17)*, June 14–19, 2026, Apex City of Bath Hotel, Bath, United Kingdom.

2024 Kyungguk Min. “High-frequency Emic Waves: a Comprehensive Analysis of Instability Threshold and Nonlinear Evolution”. In: *21st AOGS Meeding*, June 23–28, 2024, Alpensia Convention Center, Pyeongchang, Korea.

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2023 Kyungguk Min. “ST21-A001 Phase Space Density Hole/hill Formation by Whistler-mode Chorus in a Multi-component Plasma”. In: *20th AOGS Meeding*, July 30–August 04, 2023, Singapore.

2022 Kyungguk Min. “ST07-A006 The Role of Parallel Electron Plateau on the Banded Chorus Generation: 1d Pic Simulations”. In: *19th AOGS Meeting*, August 01–05, 2022, Virtual.

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2021 Kyungguk Min and Kaijun Liu. “Proton scattering by magnetosonic waves at perpendicular propagation: Comparison between QL theory and TP calculation”. In: *NSF-GEM Summer Workshop*, July 26–30, 2021, Virtual.

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2020 Kyungguk Min, Kaijun Liu, R. E. Denton, S. A. Boardsen, and F. Němec. “P1-16: Is Near-Equatorial Free Energy Source Necessary to Generate Latitudinally Limited Equatorial Noise?”. In: *9th VERSIM Workshop*, November 16–20, 2020, Virtual.

2019 Kyungguk Min, Kaijun Liu, R. E. Denton, and S. A. Boardsen. "Preferential Propagation of Equatorial Noise in Earth's Inner Magnetosphere: Event Study & PIC Simulations". In: *KHU Workshop on "Wave and Particle Dynamics in Magnetospheric and Heliospheric Plasmas: Advanced Theory and Simulations"*, May 2019, Kyung Hee University, Yongin-si, Korea.

2019 Kyungguk Min and Kaijun Liu. "Potential Role of Mirror and Ion Bernstein Instabilities on Scattering of Pickup Ions in the Outer Heliosheath". In: *International ISEE symposium on "Recent progress in heliospheric physics by direct measurements of unexplored space plasmas"*, February 25–28, 2019, Nagoya University, Nagoya, Japan.

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2014 Kyungguk Min, Lunjin Chen, Kaijun Liu, H. E. Spence, G. D. Reeves, H. O. Funsten, B. A. Larsen, C. A. Kletzing, G. B. Hospodarsky, and W S. Kurth. "Fast Magnetosonic Waves Observed by the Van Allen Probes". In: *NSF-GEM Summer Workshop*, June 2014, Snowmass CO, USA.

2013 Kyungguk Min, J. Bortnik, D. Turner, K. Keika, Wen Li, L. J. Lanzerotti, D. G. Mitchell, C. A. Kletzing, and W. S. Kurth. "Energetic electron response to March 1 storm: Coordinated observations between Van Allen Probes and THEMIS missions". In: *AGU Fall Meeting*, 2013, San Francisco CA, USA.

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2009 Kyungguk Min, K. Keika, and Jeongwoo Lee. "A Three Dimensional Test Particle Simulation for the Electron Injections associated with the 23 March 2007 Substorm". In: *American Geophysical Union (AGU) Fall Meeting*, December 2009, San Francisco CA, USA.