Dr. Xin An

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Education

- PhD in Space Plasma Physics, UCLA, 2017.
  Dissertation: Wave-particle Interactions in Space and Laboratory Plasmas.
  Advisors: Jacob Bortnik, Richard Thorne.
- BS in Geophysics, University of Science and Technology of China, 2012.

Employment

- August 2026—: Assistant Professor in Space Science, The University of Alabama in Huntsville.
- 2020—2026: Assistant Researcher, Department of Earth, Planetary and Space Sciences, UCLA.
  Supervisor: Vassilis Angelopoulos.
- Spring 2020: Lecturer, Department of Physics and Astronomy, UCLA.
- 2017—2020: Postdoctoral Researcher, Department of Atmospheric and Oceanic Sciences, UCLA.
  Supervisor: Jacob Bortnik.

Awards

- 2019: **Richard P. and Linda S. Turco Exceptional Research Publication Award**, Department of Atmospheric and Oceanic Sciences, UCLA.
- 2012—2015: **Graduate Dean's Scholar Award**, University of California, Los Angeles.
- 2011: **National scholarship**, Ministry of Education of the People's Republic of China.
  Awarded annually to top undergraduate students nationwide.

Selected Professional Activities

- 2025—2027: Core member, science team "Beyond diffusion: advancing Earth's radiation belt models with nonlinear dynamics" hosted by International Space Science Institute (ISSI) in Bern, Switzerland.
- 2024, 2025: Lead convener, "Physics of current sheets in planetary magnetospheres and solar wind: plasma kinetics, magnetic reconnection, and particle acceleration" in AGU Fall meeting.
- Fall, 2024: Lead organizer of SPARTHRB, a weekly seminar series at UCLA fostering scientific discussions among graduate students and early career scientists across space physics disciplines.
- 2024: Mentor, Encourage & Elevate mentoring program in Geospace Environment Modeling (GEM) workshop.
- 2022—: Proposal Reviewer, NSF Geospace Section and NASA Heliophysics Division.
- 2020, 2021: Convener, "Interaction Between Waves and Energetic Electrons in Space Plasmas" in AGU Fall meeting.
- 2020: Panelist, "Mesoscale processes in radiation belts" in GEM workshop.
- 2019—: Judge, Outstanding Student Paper Awards, AGU Fall meeting and GEM workshop.
- 2016—: Peer Reviewer, JGR, GRL, ApJ, PRL, PRE, Nature Communications, Physics of Plasmas, Advances in Space Research, AIP Advances.

Research Grants

External funding as PI:

- 2026: "Understanding particle dynamics and the electromagnetic environment in the lunar wake", AFOSR ($896,926, 3 yr.)
- 2024: "Development of a High-Performance, Low-Resource Magnetometer for SmallSat Constellations", NASA ($178,005, 1 yr.; selectable, contingent upon availability of funds)
- 2022: "Energy cascade of low-frequency electromagnetic waves to high-frequency electrostatic waves in the inner heliosphere", NASA ($722,606, 3 yr.)
- 2021: "Time domain structures driven by whistler waves and kinetic Alfvén waves in a laboratory plasma", NSF ($534,210; 3 yr.)
- 2021: "Magnetotail Energetic Particle Acceleration and Injection by Collisionless Reconnection and Consequent Kinetic Structures", NASA ($626,058; 3 yr.)
- 2020: "Excitation of whistler-mode chorus waves in a laboratory plasma", NASA ($303,695; 3 yr.)

External funding as co-I

- 2023: "Imaging the Dynamic Electron Distribution Function During Whistler Wave Excitation in a Laboratory Plasma", DOE (3 yr.)
- 2022: "Predictive Model of Hot Flow Anomalies and Foreshock Bubbles, NASA (3 yr.)
- 2021: "Current Sheet Configuration and Their Control of Fast Reconnection Onset", NASA (3 yr.)

Teaching and Outreach

- Summer 2025: Instructor, "Solar System and Planets" (EPSS 9), Department of Earth, Planetary, and Space Sciences, UCLA.
- 2023, 2024: Volunteer, space weather booth at public outreach event "Explore Your Universe," UCLA.
- Spring 2020: Instructor, "Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields" (Physics 1B), Department of Physics and Astronomy, UCLA.

Mentoring

Postdoctoral Researcher

- Dr. Xiaofei Shi: "Energy Transfer from Magnetohydrodynamic-scale Slow-mode Waves to Kinetic-scale Ion Acoustic Waves" (2025—2026). https://doi.org/10.3847/2041-8213/ae2ac7
- Dr. Donglai Ma: "Excitation of whistler-mode waves by an electron temperature anisotropy in a laboratory plasma" (2024-2025). https://doi.org/10.1029/2025GL118392
- Dr. Xu Zhang: "Beam-driven electron cyclotron harmonic and electron acoustic waves as seen in particle-in-cell simulations" (2024). https://doi.org/10.1029/2023JA031851

Graduate Student Researcher

- Rinisha Ramprakash: "Braking of fast plasma flows in the Earth's nightside magnetosphere" (2026—).
- Yue Yuan: "Plasma refilling of the lunar wake" (2026—).
- Donglai Ma: "Nonlinear Landau resonant interaction between whistler waves and electrons: Excitation of electron-acoustic waves" (2024). https://doi.org/10.1063/5.0171227
- Xiaofei Shi: "Inclusion of nonresonant effects into quasi-linear diffusion rates for electron scattering by electromagnetic ion cyclotron waves" (2024). https://doi.org/10.1029/2024GL109996