Niu LIU (刘牛)

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RESEARCH INTEREST

- **Reference system and frame**
- **VLBI astrometry**
- **Space astrometry**

EDUCATION

School of Astronomy & Space Science, Nanjing University Nanjing, China
Ph.D. in Astronomy 2015.09 - 2020.06
Dissertation: *Overall properties of the ICRF and Gaia-CRF (in Chinese)*
Academic advisor: *Prof. Zi ZHU*

SYRTE, Observatoire de Paris Paris, France
Joint Ph.D. program on the astrometric/geodetic VLBI data analysis 2017.11 - 2018.10
Academic advisor: *Dr. Sébastien LAMBERT*

School of Astronomy & Space Science, Nanjing University Nanjing, China
B.S. in Astronomy 2011.09 - 2015.07
Dissertation: *Improving the Precession-Nutation model by VLBI data (in Chinese)*
Academic advisor: *Dr. Jia-Cheng LIU*

GRANTS

Implication of source structure variability on the multiwavelength positions of extragalactic sources, National Natural Science Foundation of China (RMB 200,000) . . . . . 2022.01 - 2023.12

Investigation of frame-tie in the era of multiwavelength celestial reference frame, China Postdoctoral Science Foundation Fellowship (RMB 80,000) . . . . . 2021.09 - 2023.08

AWARDS

Outstanding Dissertation Award of Jiangsu Province, China 2021

"*Baogang*" Scholarship of China 2020

"Triple-A" outstanding student of Jiangsu Province, China 2020

First Prize Scholarship for Ph.D. student, Nanjing University 2018

People's Scholarship of social practice, Nanjing University 2014

PUBLICATIONS

Published

Liu N., Lambert S., Arias F., Liu J. -C., & Zhu Z., 2022, Evaluation of the ICRF stability from a position time series analysis, *Astronomy & Astrophysics*, 659, A75.

Liu N., Lambert S., Charlot P., Zhu Z., Liu J.-C. et al., 2021, Comparison of multifrequency positions of extragalactic sources from ICRF3 and *Gaia* EDR3, *Astronomy & Astrophysics*, 652, A87.

Liu N., Lambert S., Zhu Z., & Liu J.-C, 2020, Systematics and accuracy of VLBI astrometry: a comparison with *Gaia* Data Release 2, *Astronomy & Astrophysics*, 634, A28.

Liu N., Lambert S., & Zhu Z., 2018, Determining the accuracy of VLBI radio source catalogs, *Astronomy & Astrophysics*, 620, A160.

Liu N., Zhu Z., & Liu J.-C., 2018, Possible systematics in the VLBI catalogs as seen from *Gaia*, *Astronomy & Astrophysics*, 609, A19.

Liu N., Zhu Z., Liu J.-C., & Ding C.-Y., 2017, Overall properties of the *Gaia* DR1 reference frame, *Astronomy & Astrophysics*, 599, A140.

Liu N., Liu J.-C. & Zhu Z., 2017, Test of source selection for constructing a more stable and uniform celestial reference frame, *Monthly Notices of the Royal Astronomical Society*, 466, 1567-1574.

Yao J., Liu J.-C., **Liu N.**, Malkin Z., Zhu Z. et al., 2022, Effect of Galactic aberration on Earth orientation parameters: From the ICRF2 to the ICRF3, *Astronomy & Astrophysics*, 665, A121.

Tan D.-J., Liu J.-C., Zhu Z., & **Liu N.**, 2022, Evaluating the Impact of Optical Axis Stability on Exoplanet Detection, *Research in Astronomy and Astrophysics*, 22:025008.

Lambert S., **Liu N.**, Arias E. F., Barache C., Souchay J. et al., 2021, Parsec-scale alignments of radio-optical offsets with jets in AGNs from multifrequency geodetic VLBI, *Gaia* EDR3, and the MOJAVE program, *Astronomy & Astrophysics*, 651, A64.

Nural Huda I., Hidayat T., Dermawan B., Lambert S., **Liu N.** et al., 2021, Measuring the impact of Indonesian antennas on global geodetic VLBI network, *Experimental Astronomy*, 52, 141–155.

Ding C.-Y., Zhu Z., Liu J.-C., & **Liu N.**, 2020, Revisiting astrometric parameters of quasars in *Gaia*-CRF2, *Astronomy & Astrophysics*, 635, A113.

Liu J.-C., & **Liu N.**, 2020, The Galactic Aberration and Its Impact on Astronomical Reference Frames, *Chinese Journal of Astronomy and Astrophysics*, (1):113-125.

Shi Y.-Y, Zhu Z., & **Liu N.**, Liu J.-C., Ding C.-Y. et al., 2019, Comparison of PPMXL and UCAC5 catalogs with *Gaia* DR2, *The Astronomical Journal*, 157, 222.

Liu J.-C., Zhu Z., & **Liu N.**, 2018, Link between the VLBI and *Gaia* Reference Frames, *The Astronomical Journal*, 156, 13.

In Review

Liu, N., Zhu Z., Antoniadis J., Liu J.-C., Zhang H. et al., Comparison of dynamical and kinematic reference frames via pulsar positions from timing, *Gaia*, and interferometric astrometry. [In Revision at *Astronomy & Astrophysics*].

Liu, N., Lambert S., Zhu Z., & Liu J.-C., Offsets between VLBI and *Gaia* DR3 positions of extragalactic radio sources: global and individual characteristics. [In Revision at *Astronomy & Astrophysics*].

In Preperation

Liu, N., Deng X.-M., Antoniadis J., Zhu Z., Liu J.-C., et al., Comparison of planetary ephemeris reference frames from pulsar timing astrometry [In Prep].

Liu, N., Zhu Z., & Liu J.-C., Astrometric properties of the *Gaia*-CRF3 solution [In Prep].

PRESENTATIONS

Conference Presentations

12th General Meeting of the International VLBI Service for Geodesy and Astrometry (IVS), *"Evaluate the ICRF3 Axes Stability via Extragalactic Source Position Time Series."* Oral presentation, May 2022, Cyberspace.

Journées 2019, *"Is it possible to bring the Gaia-CRF2 into the VLBI data reduction?"* Oral presentation, October 2019, Paris, France.

European Geosciences Union (EGU) 2019 General Assembly, *"From ICRF2 to ICRF3: the influence on EOP determined from VLBI observations"* poster presentation, May 2019, Vienna, Austria.

RESEARCH AND WORK EXPERIENCE

Nanjing University China

"Yu-Xiu" Young Scholar Fellow, Astronomy 2020.09-Present

Worked on the frame-ties between optical and radio reference frames as well as between dynamical and kinematic celestial reference frames.

Academic advisor: Prof. Zi ZHU and Prof. Qi WANG

TEACHING EXPERIENCE

Co-Instructor

Course: Astronomical Reference System Spring 2022

School of Astronomy & Space Science, Nanjing University

- Assisted the main instructor to develop all course content for 20 graduate students
- Lectured for 10% of the class meetings
- Focused course on topics related to fundamentals of VLBI and space astrometry

Teaching Assistant

Course: Astronomical Reference System Spring 2020

School of Astronomy & Space Science, Nanjing University

- Graded assignments and tests for 20 graduate students

Course: Spherical Astronomy Spring 2016

School of Astronomy & Space Science, Nanjing University

- Graded assignments and tests for 30 undergraduate students

SYNERGISTIC ACTIVITIES

Journal Reviewer 2020-present

- *Astronomy & Astrophysics*
- *Frontiers in Astronomy and Space Sciences*
- *Acta Astronomica Sinica*

PROFESSIONAL MEMBERSHIPS

Chinese Astronomical Society

TECHNICAL

Programming

PYTHON, C, and LaTeX

Research Software and Skills

TOPCAT/STILTS, SOFA, Calc/Solve, SGDASS

Developed Codes

FACT, vsh-tools

REFERENCES

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