

Sarah Ann Bird's CV

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China Three Gorges University
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People's Republic of China

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Date of Birth

26th of June 1984

Language Skills

English (native), Spanish (excellent),
Finnish (intermediate),
Chinese (intermediate)

Nationality

United States of America

Research Expertise

Optical and spectroscopic observations
Galactic kinematic/simulations using potential theory
Galaxy halos
Galaxy formation and evolution

Refereed Publications

- Liu, Gaochao; Huang, Yang; **Bird, Sarah Ann**; Zhang, Huawei; Wang, Fei; Tian, Haijun, Probing the Galactic halo with RR Lyrae stars - III. The chemical and kinematic properties of the stellar halo, *Monthly Notices of the Royal Astronomical Society*, Volume 517, Issue 2, pp. 2787-2800.
- **Bird, Sarah A.**; Xue, Xiang-Xiang; Liu, Chao; Flynn, Chris; Shen, Juntai; Wang, Jie; Yang, Chengqun; Zhai, Meng; Zhu, Ling; Zhao, Gang; Tian, Hai-Jun, Milky Way mass with K giants and BHB stars using LAMOST, SDSS/SEGUE, and Gaia: 3D spherical Jeans equation and tracer mass estimator, *Monthly Notices of the Royal Astronomical Society*, Volume 516, Issue 1, pp.731-748.
- Shen, Yu-Fu; Zhao, Gang; **Bird, Sarah A.**, An Attempt to Construct an Activity Cycle Catalog with Kepler Long-Cadence Light Curves, 2022, *Universe*, Volume 8, Issue 9, p. 488.
- **Bird, S. A.**, Xue, X.-X., Chao, L., Shen, J., Flynn, C., Yang, C., Constraints on the assembly history of the Milky Way's smooth, diffuse stellar halo from the metallicity-dependent, radially-dominated velocity anisotropy profiles probed with K giants and BHB stars using LAMOST, SDSS/SEGUE, and *Gaia*, 2021, *The Astrophysical Journal*, Vol. 919, p. 66.
- Wang, Fan; Tian, Hai-Jun; Qiu, Dan; Xu, Qi; Fang, Min; Tian, Hao; Li, Di; **Bird, Sarah A.**; Shi, Jianrong; Fu, Xiaoting; Liu, Gaochao; Cui, Sheng; Zhang, Yong, The Stellar "Snake" I: Whole Structure and Properties, 2021, Volume 513, Issue 1, pp. 503-515.
- Wu, Wenbo; Zhao, Gang; Xue, Xiang-Xiang; **Bird, Sarah A.**; Yang, Chengqun, Contribution of Gaia Sausage to the Galactic stellar halo revealed by K giants and blue horizontal branch stars from the Large Sky Area Multi-Object Fiber Spectroscopic Telescope, Sloan Digital Sky Survey, and Gaia, 2022, *The Astrophysical Journal*, Volume 924, Issue 1, id.23, 23 pp.
- Erkal, Denis; Deason, Alis J.; Belokurov, Vasily; Xue, Xiang-Xiang; Koposov, Sergey E.; **Bird, Sarah A.**; Liu, Chao; Simion, Iulia T.; Yang, Chengqun; Zhang, Lan; Zhao, Gang, Detection of the LMC-induced sloshing of the Galactic halo, 2021, *Monthly Notices of the Royal Astronomical Society*, Vol. 506, Issue 2, pp. 2677-2684.
- Webb, S.; Flynn, C.; Cooke, J.; Zhang, J.; Mahabal, A.; Abbott, T. M. C.; Allen, R.; Andreoni, I.; **Bird, S. A.**; Goode, S.; Lochner, M.; Pritchard, T., The Deeper, Wider, Faster programme: exploring stellar flare activity with deep, fast cadenced DECam imaging via machine learning, 2021, *Monthly Notices of the Royal Astronomical Society*, Vol. 506, Issue 2, pp. 2089-2103.
- Ye, Xianhao; Zhao, Jingkun; Liu, Jiaming; **Bird, Sarah A.**; Liu, Chao; Liang, Xilong; Zhang, Jiajun; Zhao, Gang, Diagnosing Open Cluster Stock 2: Member Candidates and Mass Distribution with Gaia DR2 and LAMOST, 2021, *The Astronomical Journal*, Vol. 161, Issue 1, id. 8, 7 pp.
- Ablimit, I., Zhao, G., Flynn, C., **Bird, S. A.**, The rotation curve, mass distribution and dark matter content of the Milky Way from Classical Cepheids, 2020, *The Astrophysical Journal Letters*, Vol. 895, Issue 1, L12.
- **Bird, S. A.**, Xue, X.-X., Chao, L., Shen, J., Flynn, C., Yang, C., Anisotropy of the Milky Way's stellar halo using K giants from LAMOST and *Gaia*, 2019, *The Astronomical Journal*, Vol. 157, Issue 3, p. 104.
- **Bird, S. A.** and Flynn, C., Fading Features Found in the Kinematics of the Far-Reaching Milky Way Stellar Halo, 2015, *Monthly Notices of the Royal Astronomical Society*, Vol. 452, p. 2675.

- **Bird, S. A.**, Flynn, C., Harris, W. E., and Valtonen, M., Red giants in the outer halo of the elliptical galaxy NGC 5128 / Centaurus A, 2015, *Astronomy and Astrophysics*, Vol. 575, id. A72, 10 pp.
- **Bird, S. A.**, Dynamical and Chemical Structure of Galactic Halos, 2014, *Annales Universitatis Turkuensis A I* 495, ISBN 978-951-29-5893-1.
- **Bird, S.**, Harris, W. E., Blakeslee, J. P., and Flynn, C., The Inner Halo of M 87: A First Direct View of the Red-Giant Population, 2010, *Astronomy and Astrophysics*, Vol. 524, p. A71.
- Kiminki, D. C., Kobulnicky, H. A., Gilbert, I., **Bird, S.**, and Chunev, G., Five More Massive Binaries in the Cygnus OB2 Association, 2009, *The Astronomical Journal*, Vol. 137, Issue 6, pp. 4608-4620.

Non-Refereed Publications

- **Bird, S. A.**, Xue, X.-X., Chao, L., Shen, J., Flynn, C., Yang, C., Galactic mass and anisotropy profile with halo K-giant and blue horizontal branch stars from LAMOST/SDSS and *Gaia*, 2020, *Galactic Dynamics in the Era of Large Surveys*, IAU Symposium, Vol. 353, pp. 91-95.
- **Bird, S. A.**, Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and Gaia, 2019, *Light in the Suburbs: Structure and Chemodynamics of Galaxy Halos*, p. 21.
- **Bird, S. A.**, Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate, 2017, *Formation and Evolution of Galaxy Outskirts*, IAU Symposium, Vol. 321, p. 48.
- **Bird, S. A.**, Resolved Stellar Halos of M87 and NGC 5128: Metallicities from the Red Giant Branch, 2016, *The General Assembly of Galaxy Halos: Structure, Origin and Evolution*, IAU Symposium, Vol. 317, pp. 276-277.
- **Bird, S. A.**, Flynn, C., Harris, W. E., Flynn, C., Blakeslee, J. P., and Valtonen, M., Resolved Stellar Halos of M87 and NGC 5128, 2015, *IAU General Assembly*, Vol. 22, p. 54524.
- **Bird, S.**, Flynn, C., Harris, W. E., and Valtonen, M., Centaurus A: Stellar Metallicity Transition in the Halo, 2013, *American Astronomical Society, AAS Meeting 221*, p. 303.01.
- Boles, T., Smartt, S. J., Valenti, S., Mattila, S., Kankare, E., Katajainen, S., **Bird, S. A.**, and Pursimo, T., Supernova 2010ik in UGC 112, 2010, *Central Bureau Electronic Telegrams*, 2479, 1. Edited by Green, D. W. E.
- Kiminki, D. C., Gilbert, I., **Bird, S.**, Chunev, G., Kobulnicky, H. A., Four More Massive Binaries in the Cygnus OB2 Association, 2009, *Bulletin of the American Astronomical Society*, Vol. 41, p. 300.
- **Bird, S.**, Chunev, G., Kobulnicky, H., Uzpen, B., Optical Spectroscopy of GLIMPSE Stars with 8 Micron Infrared Excesses, 2007, *Bulletin of the American Astronomical Society*, Vol. 39, p. 813.

Education

Ph.D. in Astronomy University of Turku, Department of Physics and Astronomy	August 2008 - November 2014
B.S. in Physics, minors in Mathematics and Spanish University of Missouri--Columbia, 3.643 cumulative Grade Point Average (out of 4)	August 2003 - December 2007

Honors and Awards

Dean's List , University of Missouri-Columbia.	All semesters 2003 - 2007
Valedictorian , Christian High School, O'Fallon, MO.	May 2003
"Lower Rower" Award , Christian High School, O'Fallon, MO, for service, helpfulness, and humility.	May 2003

Grants Received

Chinese Academy of Sciences President's International Fellowship Initiative (PIFI) postdoctoral research, 33,333 RMB	November - December 2020
Aliyun Fellowship , postdoctoral research, 400,000 RMB	November 2018 – October 2020
Chinese Academy of Sciences President's International Fellowship Initiative (PIFI) postdoctoral research, 400,000 RMB	January 2016 - October 2018
Postdoctoral Fellow of LAMOST , 300,000 RMB	December 2014 - December 2015
Turku University Foundation - Leena Tähtitisen Memorial Foundation , travel, 600€	October 2014
Finnish Graduate School Fund , conference, 173€	May 2014
Turku University Foundation - Leena Tähtitisen Memorial Foundation , travel, 700€	April 2014
Turku University Foundation - Leena Tähtitisen Memorial Foundation , travel, 800€	October 2013

Jenny and Antti Wihuri Foundation , postdoctoral research, 26000 €	October 2013
Emil Aaltonen Foundation , travel, 4100 €	April 2013
Turku University Foundation , doctoral studies, 9756 €	April 2013
Finnish Cultural Foundation , doctoral studies, 21000 €	2013
Finnish Graduate School Fund , conference, 150 €	June 2012
Magnus Ehrnrooth Foundation , travel, 3000 €	May 2012
Magnus Ehrnrooth Foundation , travel, 1500 €	April 2011
University of Turku , observations at the NOT, 1349 €	February 2011
Jenny and Antti Wihuri Foundation , doctoral studies, 21000 €	2010 - 2012
G.W. Wulff Astronomy Research Fund , travel, 1160 €	July 2010
Finnish Graduate School Fund , travel, 193 €	March 2010

Research and Work Experience

Associate Professor , China Three Gorges University Yichang, Hubei, People's Republic of China	January 2021 - December 2023
Postdoctoral Fellow , National Astronomical Observatories Chinese Academy of Sciences, Beijing, People's Republic of China	December 2018 - 2020
Postdoctoral Fellow , Shanghai Astronomical Observatory Shanghai, People's Republic of China	December 2014 - 2018
Ph.D. Research with Chris Flynn in Australia	10 months
Research with Bill Harris McMaster University, Hamilton, Ontario, Canada Research conducted for the paper <i>The Inner Halo of M87: A First Direct View of the Red-Giant Population</i> in the Astronomy and Astrophysics Journal.	November - December 2010
Observation Run at the NOT 2.5 m Nordic Optical Telescope, La Palma, Spain Survey with Seppo Katajainen of a sample of variable stars for circular polarization and signs of magnetic fields.	8 - 10 February 2011 3 - 6 October 2010
ESO Director General's Discretionary Fund Student European Southern Observatory in Santiago, Chile Research conducted with Michael West and Roberto De Propis which included using SDSS to search for galaxy clusters around distant quasars and studying the globular cluster population around galaxy NGC 3370 using archival HST images.	May - July 2008
Research Experience for Undergraduates University of Wyoming, Laramie Research conducted with Dr. Chip Kobulnicky and Georgi Chunev which included reducing (using IRAF) and classifying the optical spectra [3910 - 6670 Å] for 20 previously unclassified stars having 8 micron excess in the Spitzer GLIMPSE Point Source Catalog. Spectra obtained with the Wyoming Infrared Observatory 2.3 m telescope and longslit spectrograph.	May - July 2007
Comet Research University of Missouri-Columbia Research conducted with Dr. Aigen Li involving comets, specifically Hale-Bopp, and using Fortran to model the dust production rates with particular attention paid to mm and cm-sized large grains.	September 2006 - February 2008
Simulation Methods in Astrophysics , The Finnish Graduate School in Astronomy and Space Physics Summer School 2010, Mariehamn, Åland, Finland	16 - 20 August 2010
Frontiers in High-Energy Astrophysics , The 27th School in Theoretical Physics, Hebrew University of Jerusalem, Israel	27 December 2009 - 5 January 2010
Star Formation in the Milky Way and Nearby Galaxies , Nordic-Baltic Optical/NIR and Radio Astronomy Research Infrastructure Graduate Training Course, Tuorla Observatory, University of Turku, Finland	8 - 18 June 2009

Computer Experience and Skills

Linux (Suse, Fedora, Ubuntu),
Research of galaxies.
Unix (Solaris), General use.
Windows, General use.
Mac OS X, General use.

Software: OpenOffice, StarOffice, Word, Excel, PowerPoint, HTML,
Mathematica, FTP, SFTP, TELNET, SSH, Fortran, IRAF, Python, IDL, vi, Emacs,
Mozilla, Firefox, Internet Explorer, gnuplot, Gnumeric, DS9, Source Extractor,
SkyCat, SAS, SPSS, LaTeX, Beamer, Xournal, mongo, GIMP, TOPCAT, g3data.

Presentations

Linking the Galactic and Extragalactic virtual meeting, Pre-recorded Talk and Online Panelist , Wollongong, Australia "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	3-4 December 2020
Purple Mountain Observatory, Online Oral , Nanjing, China "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	14 July 2020
Astro/Cosmology Lunch Seminar, Online Oral , Kavli IPMU, Japan "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	7 July 2020
Sixth International Conference on Aerospace Science and Engineering, Invited Keynote Speaker , Islamabad, Pakistan "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	12-14 November 2019
2019 Meeting of the JSPS-CAS Collaboration Program: Origins of the Milky Way halo substructure explored with LAMOST and Subaru, Oral , Hohhot, China "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	26-27 September 2019
Light in the Suburbs: Structure and Chemodynamics of Galaxy Halos, Oral , Sexten, Italy "Galactic Mass and Anisotropy Profile with Halo K-Giant and Blue Horizontal Branch Stars from LAMOST/SDSS and <i>Gaia</i> "	14 June 2019
Lunch talk, Peking University , Beijing, China "Milky Way's Mass and Anisotropy Profiles with LAMOST/SDSS and <i>Gaia</i> "	5 November 2018
Postdoctoral Final Report, Oral , Shanghai Astronomical Observatory, Shanghai, China "Milky Way's Mass and Anisotropy Profiles with LAMOST/SDSS and <i>Gaia</i> "	26 October 2018
Seminar, Yunnan University , Kunming, China "Milky Way's Mass and Anisotropy Profiles with LAMOST/SDSS and <i>Gaia</i> "	26 September 2018
Stellar Halos Across the Cosmos, Oral , Heidelberg, Germany "Milky Way's Anisotropy Profile with LAMOST/SDSS and <i>Gaia</i> "	2 July 2018
SDSS-IV Collaboration Meeting, Oral , Seoul, South Korea "Milky Way's Anisotropy Profile with LAMOST/SDSS and <i>Gaia</i> "	18 June 2018
East Asian Young Astronomers Meeting, Oral , Ishigaki Island, Japan "Velocity Dispersion and Mass Profiles of the Milky Way's Halo"	14 November 2017
Chinese Astronomical Society Meeting, Oral , Ürümqi, China "LAMOST Halo K Giants: Kinematic and Mass Profiles"	10 August 2017
Asia-Pacific Regional IAU Meeting, Oral , Taipei, Taiwan "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	7 July 2017
Cross-Strait Symposium of Astrophysics, Oral , Taipei, Taiwan "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	2 July 2017
Journal Club, Oral , Shanghai Astronomical Observatory, Shanghai, China "Review: Milky Way Stellar Halo as Seen by SDSS"	12 May 2017
973 Project: LAMOST, Oral , Kunming, China "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	19 February 2017
The Milky Way and its Environment, Poster , Paris, France "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	19-23 September 2016
Chinese Astronomical Society Meeting, Oral , Wuhan, China "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	3 November 2016
Colloquium, Oral , University of Science and Technology of China, Hefei, China "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	7 June 2016
Tuorla Seminar, Oral , Kaarina, Finland "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	7 April 2016
Formation and Evolution of Galaxy Outskirts: IAU Symposium No. 321, Poster Toledo, Spain, "Halo K-Giant Stars from LAMOST: Kinematics and Galactic Mass Estimate"	14 - 18 March 2016
Astrophysics Symposium, Oral , Suzhou, Jiangsu, China	4 - 6 December 2015

"The Resolved Stellar Halos of the Giant Elliptical Galaxies M87 and NGC 5128"	11 November 2015
KIAA/DoA 2015 Postdoc Science Day, Oral , Peking University, Beijing, China, "Kinematics of the Milky Way Stellar Halo: Fading Features and LAMOST"	2 November 2015
Graduate Student Dinner Talk, Oral , Peking University, Beijing, China, "Dynamical and Chemical Structure of Galactic Stellar Halos"	19 - 21 October 2015
Chinese Astronomical Society Meeting, Oral , Peking University, Beijing, China, "Dynamical and Chemical Structure of Galactic Stellar Halos"	11 September 2015
Journal Club, Oral , Shanghai Astronomical Observatory, Shanghai, China "Survival of Globular Clusters"	3 - 14 August 2015
IAU XXIX General Assembly, Poster Honolulu, Hawaii, USA, "Resolved Stellar Halos of M87 and NGC 5128"	18 - 19 May 2015
2015 KIAA-SHAO Bilateral Workshop, Oral , Peking University Beijing, China, "Fading Features Found in the Milky Way Stellar Halo Kinematics"	24 - 29 March 2015
Xiamen University and SHAO Collaborative Meeting, Oral China, "Fading Features Found in the Milky Way Stellar Halo Kinematics"	23 - 27 February 2015
Baryons at Low Densities: the Stellar Halos Around Galaxies, Oral ESO Garching, Germany, "Resolved Stellar Halos of M87 and NGC 5128 (Cen A)"	6 February 2015
National Astronomical Observatories, Chinese Academy of Sciences, Oral Beijing, "Dynamical and Chemical Structure of Galaxy Halos"	1 - 3 October 2014
Tuorla-Tartu Annual Meeting 2014: Small and Large Scale Universe, Oral Turku, Finland, "Red-Giants in the Halos of M87 and NGC 5128"	21 - 26 July 2014
Alpine Cosmology Workshop 2014, Oral , Gschnitztal Valley, Tyrol, Austria "Red-Giants in the Halos of M87 and NGC 5128"	30 June - 4 July 2014
European Week of Astronomy and Space Science (EWASS) 2014, Oral Geneva, Switzerland, "Fading Features Found in the Milky Way Stellar Halo Kinematics"	26 - 28 May 2014
Astronomer's Days 2014, Oral , Savonlinna, Finland "Fading Features Found in the Milky Way Stellar Halo Kinematics"	29 November 2013
Tuorla Seminar, Oral , Piikkiö, Finland, "Testing a Velocity Dispersion Model of the Milky Way Stellar Halo"	23 - 26 September 2013
Galaxy Zoo -- Evolutionary Paths in Galaxy Morphology, Poster , Sydney, Australia "Testing a Velocity Dispersion Model of the Milky Way Stellar Halo"	7 - 12 July 2013
Astronomical Society of Australia, Poster , Melbourne, Australia, "Testing a Velocity Dispersion Model of the Milky Way Stellar Halo"	9 January 2013
American Astronomical Society 221st, Oral , Long Beach, California, "Centaurus A: Stellar Metallicity Transition in the Halo"	June 2012
Astronomer's Days 2012, Oral , Porvoo, Finland, "The Transition"	2 May 2012
GEMS, Oral , Swinburne University of Technology, Melbourne, Australia "The Transition"	31 August 2011
XIII meeting of Finnish National Committee on Space Research: FinCOSPAR 2011 Oral , Kemiö, Finland, "Distribution of Globular Clusters After a Late Merger"	12 April 2011
Guest Speaker, Pontificia Universidad Católica de Chile , Santiago, Chile "Distribution of Globular Clusters After a Merger"	7 April 2011
Dynamics of Low-Mass Stellar Systems: From Star Clusters to Dwarf Galaxies Workshop, Oral , Santiago, Chile, "Distribution of Globular Clusters After a Merger"	3 December 2010
Dark Matter Awareness Week, Oral , Tuorla Observatory, University of Turku, Finland, "Dark Matter in Galaxies"	3 September 2010
Tuorla-Tartu Annual Meeting 2010: Observational Cosmology, Oral Turku, Finland, "The Inner Halo of M87: A First Direct View of the Red-Giant Population"	6 June 2010
Astronomer's Days 2010, Oral , Kangasala, Finland "The Inner Halo of M87: A First Direct View of the Red-Giant Population"	9 January 2008
American Astronomical Society 211th Poster , Austin, Texas "Optical Spectroscopy of GLIMPSE Stars with 8 Micron Infrared Excesses"	

Outreach and Teaching Experience

Instructor for Galactic Astronomy based on the book <i>Galactic Astronomy</i> by Binney & Merrifield	September - December 2021
#shutdownstem #strike4blacklives https://www.shutdownstem.com , https://www.particlesforjustice.org/ Take action to further the cause of ending global anti-blackness, beginning within academia.	10 June 2020
Committee On INclusiveness in the SDSS (COINS) Promotes opportunity and accessibility among the SDSS astronomy community	October 2018 - present
Radio interview , Science Cube on FM93.4, smgrad.io, China Introduction to my astronomy career and my postdoc in China	26 November 2017
"Astronomy Meeting Public," Shanghai Natural History Museum, China Managing the table for introducing the public to the Shanghai Astronomical Observatory	26 November 2017
Xinhua High School , Shanxi, China Public astronomy lecture	August 2016
Aibeier English Kindergarten , Shanxi, China Special astronomy lecture welcoming the opening of the new school	August 2016
Time Trek Association , Finland Board member	September 2012 - December 2014
Public Talk for Paimio and Sauvo High Schools Paimio City Hall, Finland, "It's a Bird's Life"	7 March 2014
Finnish Astronomical Society Board member	June 2012 - June 2013
Job Shadowing Experience for a Turku High School Student Tuorla Observatory, University of Turku, Finland Host and organizer of a short research project for a female student from Turun Normaalikoulu IB-linja during her job following assignment for school.	November 29 - December 3 2010
Tuorla Open House Tuorla Observatory, University of Turku, Finland Tour guide for telescopes, optics lab, and general information about Tuorla during the days devoted to general public outreach.	March 2009, 2010
Assistant during Wyoming Astro Camp University of Wyoming, Laramie A week-long camp devoted to junior high school students for teaching them astrophysics in a fun and easy-to-understand way.	June 2007