

JO BOVY

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EMPLOYMENT

University of Toronto, Toronto, Canada
Assistant Professor, 2015–present
Institute for Advanced Study, Princeton, NJ
Long-term Member, 2011–2015

VISITING POSITIONS

Center for Computational Astrophysics, Flatiron Institute, New York, NY
Consultant, 2016–2017

EDUCATION

Ph.D., Physics, May 2011
New York University, New York, NY
Postgraduate Studies in Logic, History and Philosophy of Science (~ 1 yr MA), September 2006
Universiteit Gent, Belgium
Master, Physics, *magna cum laude*, June 2005
Katholieke Universiteit Leuven, Belgium
Master, Mathematics, *cum laude*, June 2005
Katholieke Universiteit Leuven, Belgium

HONORS AND FELLOWSHIPS

2016	Alfred P. Sloan Fellow
2016	R. Jack and Forest Lynn Biard Lecturer in Astrophysics, Caltech
2015	Canada Research Chair in Galactic Astrophysics (Tier 2)
2014	John N. Bahcall Fellowship
2014	Sofja Kovalevskaja Award, Alexander von Humboldt Foundation (declined)
2012	Dean's Outstanding Dissertation Award, New York University
2011	Hubble Postdoctoral Fellowship
2010	Dr. Pliny A. and Margaret H. Price Prize in Cosmology and AstroParticle Physics, Ohio State University
2006	Honorary Fellow of the Belgian American Educational Foundation (BAEF)

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

Survey Leadership and Involvement:

Co-chair, Deus ex Machina Machine-Learning Working Group, after-Sloan-IV (2017–present)
 Chair, APOGEE-1 Science Working Group (2014–2015)
 Co-chair, APOGEE-2 Disk Working Group (2013–2014)
 Member, *SDSS-III BOSS* quasar target selection team; *BOSS* Architect (2010–2014)

Refereeing and Panel Review:

Referee for: *Annalen der Physik*, the *Astronomical Journal*, *Astronomy & Astrophysics*, the *Astrophysical Journal*, the *Astrophysical Journal Letters*, *Celestial Mechanics and Dynamical Astronomy*, *Computer Physics Communications*, the *Journal of the American Statistical Association*, the *Journal for Cosmology and Astroparticle Physics*, the *Monthly Notices of the Royal Astronomical Society*, *Nature*, *Nature Astronomy*, *Physics Letters B*, *Physical Review D*, *Physical Review Letters*, the *Publications of the Astronomical Society of the Pacific*, and the *Publications of the Astronomical Society of Japan*

Canadian Time Allocation Committee member (CFHT/Gemini), 2017–2020
 Ontario Early Researcher Award, Environment and Natural Science panel member, 2017
 Canada-France-Hawaii Telescope Canadian Time Allocation Committee, External Reviewer: 2016A, 2016B
 Australian Time Assignment Committee (for the AAT), Expert science reviewer (2016)
 ERC Consolidator Grant, Remote Reviewer (2016)
 China Telescope Access Program 2015B External Reviewer (2015)
 NASA Earth and Space Science Fellowship Program 2014 External Reviewer (2014)
 Hubble Space Telescope Cycle 21 Time Allocation Committee (2013)

Seminar and Conference Organization:

Co-coordinator, KITP program “Dynamical Models for Stars and Gas in Galaxies in the *Gaia* Era” (2019)
 SOC co-chair, workshop “Stellar Streams in the Local Universe”, Ringberg Castle (2015)
 SOC chair, KITP conference “The Milky Way and its stars: stellar astrophysics, Galactic archeology, and stellar populations” (2015)
 Co-coordinator, KITP program “Galactic Archaeology and Precision Stellar Astrophysics” (2015)
 IAS Formal Seminar organizer (2012 to 2013)

University of Toronto Service:

A&A departmental graduate curriculum committee (2017)
 A&A departmental computing committee (2017)

GRANTS

2017–2019	UCL–U of T Collaborative Projects and Exchange Activities (w/ Daisuke Kawata co-PI), 28,000 CAD
2017–2022	Ontario Early Researcher Award, 140,000 CAD
2015–2020	Canada Research Chair in Galactic Astrophysics (Tier 2), 500,000 CAD
2015–2020	NSERC Discovery Grant, 165,000 CAD

MENTORING

PhD supervision:

Morgan Bennett, UofT (2017-present)
 Natalie Price-Jones, UofT (2016-present)
 Wilma Trick, MPIA (2013-2017; co-supervisor with H.-W. Rix)

Postdoctoral supervision:

Jeremy Webb, NSERC Fellow (2017-present)
 Jason Hunt, Dunlap Fellow (2016-present)

AST1501/1500 supervision (Toronto 1st year PhD project):

Anita Bahmanyar (2015-2016), Natalie Price-Jones (2015-2016), Morgan Bennett (2017)

AST425 supervision (Toronto's 4th year undergraduate research course):

Wai (Henry) Leung (2017-2018)

Master's thesis/project supervision:

Yuan-Sen Ting (MPIA/CfA Harvard, 2012-2013)

Summer Undergraduate Project Supervision:

Aladdin Seaifan (UofT, 2016)
 Jack Hong (UofT, 2017)
 Shaziana Kaderali (UofT, 2017)

Ph.D. Supervisory Committee:

Ryan Cloutier (2016-present)
 Rejean Leblanc (2017-present)

Ph.D. Defense / Thesis Qualifier Committee:

Wayne Ngan (08/2015; defense), Nolan Denman (09/2015; qualifier), Yuan-Sen Ting (12/2016; Harvard, defense), Aleksandar Rachkov (01/2017, 08/2017; qualifier), Ari Silburt (08/2017; defense)

PUBLICATIONS

REFEREED PUBLICATIONS

96. Natalie Price-Jones & **Jo Bovy**, The dimensionality of stellar chemical space using spectra from the Apache Point Observatory Galactic Evolution Experiment, *Mon. Not. Roy. Astron. Soc.*, *in press* (2017) arXiv:1706.00009 [astro-ph.GA].
95. Bela Abolfathi, et al., The Fourteenth Data Release of the Sloan Digital Sky Survey: First Spectroscopic Data from the extended Baryon Oscillation Sky Survey and from the second phase of the Apache Point Observatory Galactic Evolution Experiment, *Astrophys. J. Supp.*, *in press* (2017) arXiv:1707.09322 [astro-ph.GA].
94. Ana E. García Pérez, Melissa Ness, Annie C. Robin, Inmaculada Martinez-Valpuesta, Jennifer Sobeck, Gail Zasowski, Steven R. Majewski, **Jo Bovy**, et al., The Bulge Metallicity Distribution from the APOGEE Survey, *Astron. J.*, *in press* (2018) arXiv:1712.01297 [astro-ph.GA].

93. Jason A. S. Hunt, **Jo Bovy**, Angeles Pérez-Villegas, et al., The Hercules stream as seen by APOGEE-2 South, *Mon. Not. Roy. Astron. Soc.* **474**, 95 (2018) arXiv:1709.02807 [astro-ph.GA].
92. **Jo Bovy**, Daisuke Kawata, & Jason A. S. Hunt, Made-to-measure modeling of observed galaxy dynamics, *Mon. Not. Roy. Astron. Soc.* **473**, 2288 (2018) arXiv:1704.03884 [astro-ph.GA].
91. G. Zasowski, R. E. Cohen, S. D. Chojnowski, F. Santana, R. J. Oelkers, B. Andrews, R. L. Beaton, C. Bender, J. C. Bird, **Jo Bovy**, et al., Target Selection for the SDSS-IV APOGEE-2 Survey, *Astron. J.* **154**, 198 (2017) arXiv:1708.00155 [astro-ph.GA].
90. Franco D. Albareti, et al., The thirteenth data release of the Sloan Digital Sky Survey: First spectroscopic data from the SDSS-IV Survey MAPPING Nearby Galaxies at Apache Point Observatory, *Astrophys. J. Supp.* **233**, 25 (2017) arXiv:1608.02013 [astro-ph.GA].
89. Steven R. Majewski, et al., The Apache Point Observatory Galactic Evolution Experiment (APOGEE), *Astron. J.* **154**, 94 (2017) arXiv:1509.05420 [astro-ph.GA].
88. J. Ted Mackereth, **Jo Bovy**, Ricardo P. Schiavon, et al., The age-metallicity structure of the Milky Way disk, *Mon. Not. Roy. Astron. Soc.* **471**, 3057 (2017) arXiv:1706.00018 [astro-ph.GA].
87. Keith Hawkins, Boris Leistedt, **Jo Bovy**, & David W. Hogg, Red clump stars and Gaia: calibration of the standard candle using a hierarchical probabilistic model, *Mon. Not. Roy. Astron. Soc.* **471**, 722 (2017) arXiv:1705.08988 [astro-ph.GA].
86. F. Jahandar, K. A. Venn, M. D. Shetrone, M. Irwin, **Jo Bovy**, C. M. Sakari, C. L. KIELTY, R. A. R. Digby, & P. M. Frinchaboy, The peculiar globular cluster Palomar 1 and its surrounding field in the SDSS-APOGEE database, *Mon. Not. Roy. Astron. Soc.* **470**, 4782 (2017) arXiv:1706.09074 [astro-ph.GA].
85. **Jo Bovy**, Stellar inventory of the solar neighborhood using *Gaia* DR1, *Mon. Not. Roy. Astron. Soc.* **470**, 1360 (2017) arXiv:1704.05063 [astro-ph.GA].
84. Michael R. Blanton, et al., Sloan Digital Sky Survey IV: Mapping the Milky Way, Nearby Galaxies and the Distant Universe, *Astron. J.* **154**, 28 (2017) arXiv:1703.00052 [astro-ph.GA].
83. Y. Q. Chen, L. Casagrande, G. Zhao, **Jo Bovy**, V. Silva Aguirre, J. K. Zhao, & Y. P. Jia, Absolute magnitudes of seismic red clumps in the Kepler field and SAGA: the age dependency of the distance scale, *Astrophys. J.* **840**, 77 (2017) arXiv:1704.03903 [astro-ph.GA].
82. Tobias K. Fritz, Sean Linden, Paul Zivick, Nitya Kallivayalil, Rachael Beaton, **Jo Bovy**, et al., The proper motion of Pyxis: The first use of adaptive optics in tandem with HST on a faint halo object, *Astrophys. J.* **840**, 30 (2017) arXiv:1611.08598 [astro-ph.GA].
81. Wilma H. Trick, **Jo Bovy**, Elena D’Onghia, & Hans-Walter Rix, Action-based dynamical modeling for the Milky Way disk: the influence of spiral arms, *Astrophys. J.* **839**, 61 (2017) arXiv:1703.05970 [astro-ph.GA].
80. **Jo Bovy**, Galactic rotation in *Gaia* DR1, *Mon. Not. Roy. Astron. Soc. Lett.* **468**, L63 (2017) arXiv:1610.07610 [astro-ph.GA].
79. **Jo Bovy**, Denis Erkal, & Jason L. Sanders, Linear perturbation theory for tidal streams and the small-scale CDM power spectrum, *Mon. Not. Roy. Astron. Soc.* **466**, 628 (2017) arXiv:1606.03470 [astro-ph.GA].
78. Jason A. S. Hunt, **Jo Bovy**, & Raymond G. Carlberg, Detection of a dearth of stars with zero angular momentum in the solar neighbourhood, *Astrophys. J. Lett.* **832**, L25 (2016) arXiv:1610.02030 [astro-ph.GA].
77. **Jo Bovy**, Anita Bahmanyar, Tobias K. Fritz, & Nitya Kallivayalil, The shape of the inner Milky Way halo from observations of the Pal 5 and GD-1 stellar streams, *Astrophys. J.* **833**, 31 (2016) arXiv:1609.01298 [astro-ph.GA].
76. Isabelle Pâris, et al., The Sloan Digital Sky Survey Quasar Catalog: Twelfth data release, *Astron. & Astrophys.* **597**, A79 (2017) arXiv:1608.06483 [astro-ph.GA].
75. Denis Erkal, Vasily Belokurov, **Jo Bovy**, & Jason L. Sanders, The number and size of subhalo-induced gaps in stellar streams, *Mon. Not. Roy. Astron. Soc.* **463**, 102 (2016) arXiv:1606.04946 [astro-ph.GA].
74. Diogo Souto, Katia Cunha, Verne Smith, Carlos Allende Prieto, Marc Pinsonneault, Olga Zamora, D. Anibal García-Hernández, Szabolcs Mészáros, **Jo Bovy**, et al., Chemical abundances in a sample of red giants in the open cluster NGC 2420 from APOGEE, *Astrophys. J.* **830**, 35 (2016) arXiv:1607.06102

- [astro-ph.SR].
73. Wilma H. Trick, **Jo Bovy**, & Hans-Walter Rix, Action-based dynamical modeling for the Milky Way disk, *Astrophys. J.* **830**, 97 (2016) arXiv:1605.08601 [astro-ph.GA].
 72. Ana E. García Pérez, et al., ASPCAP: The APOGEE stellar parameter and chemical abundances pipeline, *Astron. J.* **151**, 144 (2016) arXiv:1510.07635 [astro-ph.SR].
 71. **Jo Bovy**, Hans-Walter Rix, Edward F. Schlafly, David L. Nidever, Jon A. Holtzman, Matthew Shetrone, & Timothy C. Beers, The stellar population structure of the Galactic disk, *Astrophys. J.* **823**, 30 (2016) arXiv:1509.05796 [astro-ph.GA].
 70. **Jo Bovy**, Detecting the disruption of dark-matter halos with stellar streams, *Phys. Rev. Lett.* **116**, 121301 (2016) arXiv:1512.00452 [astro-ph.GA].
 69. Jason L. Sanders, **Jo Bovy**, & Denis Erkal, Dynamics of stream-subhalo interactions, *Mon. Not. Roy. Astron. Soc.* **457**, 3817 (2016) arXiv:1510.03426 [astro-ph.GA].
 68. **Jo Bovy**, Hans-Walter Rix, Gregory M. Green, Edward F. Schlafly, & Douglas P. Finkbeiner, On Galactic density modeling in the presence of dust extinction, *Astrophys. J.* **818**, 130 (2016) arXiv:1509.06751 [astro-ph.GA].
 67. Kyle S. Dawson, et al., The SDSS-IV extended Baryon Oscillation Spectroscopic Survey: Overview and early data, *Astron. J.* **151**, 44 (2016) arXiv:1508.04473 [astro-ph.CO].
 66. **Jo Bovy**, The chemical homogeneity of open clusters, *Astrophys. J.* **817**, 49 (2016) arXiv:1510.06745 [astro-ph.GA].
 65. Diane K. Feillet, **Jo Bovy**, Jon Holtzman, Léo Girardi, Nick MacDonald, & David L. Nidever, Determining ages of APOGEE giants with known distances, *Astrophys. J.* **817**, 40 (2016) arXiv:1511.04088 [astro-ph.GA].
 64. Éric Aubourg, et al., Cosmological implications of baryon acoustic oscillation (BAO) measurements, *Phys. Rev. D* **92**, 123516 (2015) arXiv:1411.1074 [astro-ph.CO].
 63. Adam D. Myers, Nathalie Palanque-Delabrouille, Abhishek Prakash, Isabelle Pâris, Christophe Yèche, Kyle S. Dawson, **Jo Bovy**, et al., The SDSS-IV extended Baryonic Oscillation Spectroscopic Survey: Quasar target selection, *Astrophys. J. Supp.* **221**, 27 (2015) arXiv:1508.04472 [astro-ph.CO].
 62. Jon A. Holtzman, Matthew Shetrone, Jennifer A. Johnson, Carlos Allende Prieto, Friedrich Anders, Brett Andrews, Timothy C. Beers, Dmitry Bizyaev, Michael R. Blanton, **Jo Bovy**, et al., Abundances, stellar parameters, and spectra from the SDSS-III/APOGEE survey, *Astron. J.* **150**, 148 (2015) arXiv:1501.04110 [astro-ph.GA].
 61. Robert J. J. Grand, **Jo Bovy**, Daisuke Kawata, Jason A. S. Hunt, Benoit Famaey, Arnaud Siebert, Giacomo Monari, & Mark Cropper, Spiral and bar driven peculiar velocities in Milky Way sized galaxy simulations, *Mon. Not. Roy. Astron. Soc.* **453**, 1867 (2015) arXiv:1506.02668 [astro-ph.GA].
 60. Xiang-Xiang Xue, Hans-Walter Rix, Zhibo Ma, Heather Morrison, **Jo Bovy**, Branimir Sesar, & William Janesh, The radial profile and flattening of the Milky Way's stellar halo to 80 kpc from the SEGUE K-giant survey, *Astrophys. J.* **809**, 144 (2015) arXiv:1506.06144 [astro-ph.GA].
 59. Michael A. DiPompeo, **Jo Bovy**, Adam D. Myers, & Dustin Lang, Quasar probabilities and redshifts from WISE mid-IR through GALEX UV photometry, *Mon. Not. Roy. Astron. Soc.* **452**, 3124 (2015) arXiv:1507.02884 [astro-ph.CO].
 58. Branimir Sesar, **Jo Bovy**, et al., The nature and orbit of the Ophiuchus stream, *Astrophys. J.* **809**, 59 (2015) arXiv:1501.00581 [astro-ph.GA].
 57. Michael R. Hayden, **Jo Bovy**, Jon A. Holtzman, et al., Chemical cartography with APOGEE: Metallicity distribution functions and the chemical structure of the Milky Way disk, *Astrophys. J.* **808**, 132 (2015) arXiv:1503.02110 [astro-ph.GA].
 56. Marie Martig, Hans-Walter Rix, Victor Silva Aguirre, Saskia Hekker, Benoit Mosser, Yvonne Elsworth, **Jo Bovy**, et al., Young alpha-enriched giant stars in the solar neighbourhood, *Mon. Not. Roy. Astron. Soc.* **451**, 2230 (2015) arXiv:1412.3453 [astro-ph.GA].
 55. Shadab Alam, et al., The eleventh and twelfth Data Releases of the Sloan Digital Sky Survey: Final data

- from SDSS-III, *Astrophys. J. Supp.* **219**, 12 (2015) arXiv:1501.00963 [astro-ph.IM].
54. Szabolcs Mészáros, Sarah L. Martell, Matthew Shetrone, Sara Lucatello, Nicholas Troup, **Jo Bovy**, et al., Exploring anticorrelations and light element variations in northern globular clusters observed by the APOGEE survey, *Astron. J.* **149**, 153 (2015) arXiv:1501.05127 [astro-ph.SR].
 53. Nina Hernitschek, Hans-Walter Rix, **Jo Bovy**, & Eric Morganson, Estimating black hole masses in hundreds of quasars, *Astrophys. J.* **801**, 45 (2015) arXiv:1412.6531 [astro-ph.GA].
 52. **Jo Bovy**, Jonathan C. Bird, Ana E. García Pérez, Steven R. Majewski, David L. Nidever, & Gail Zasowski, The power spectrum of the Milky Way: Velocity fluctuations in the Galactic disk, *Astrophys. J.* **800**, 83 (2015) arXiv:1410.8135 [astro-ph.GA].
 51. **Jo Bovy**, galpy: A python library for galactic dynamics, *Astrophys. J. Supp.* **216**, 29 (2015) arXiv:1412.3451 [astro-ph.GA].
 50. Timothée Delubac, et al., Baryon Acoustic Oscillations in the Ly α forest of BOSS DR11 quasars, *Astron. & Astrophys.* **574**, A59 (2015) arXiv:1404.1801 [astro-ph.CO].
 49. Marc Pinsonneault, et al., The APOKASC Catalog: An asteroseismic and spectroscopic joint survey of targets in the Kepler fields, *Astrophys. J. Supp.* **215**, 19 (2014) arXiv:1410.2503 [astro-ph.SR].
 48. Thaïse S. Rodrigues, Léo Girardi, Andrea Miglio, Diego Bossini, **Jo Bovy**, et al., Bayesian distances and extinctions for giants observed by *Kepler* and APOGEE, *Mon. Not. Roy. Astron. Soc.* **445**, 2758 (2014) arXiv:1410.1350 [astro-ph.SR].
 47. David L. Nidever, **Jo Bovy**, et al., Tracing chemical evolution over the extent of the Milky Way's disk with APOGEE red clump stars, *Astrophys. J.* **796**, 38 (2014) arXiv:1409.3566 [astro-ph.GA].
 46. **Jo Bovy**, Dynamical modeling of tidal streams, *Astrophys. J.* **795**, 95 (2014) arXiv:1401.2985 [astro-ph.GA].
 45. Sarah R. Loebman, Željko Ivezić, Thomas R. Quinn, **Jo Bovy**, Charlotte R. Christensen, Mario Jurić, Rok Roškar, Alyson M. Brooks, & Fabio Governato, The Milky Way tomography with SDSS. V. Mapping the dark matter halo, *Astrophys. J.* **794**, 151 (2014) arXiv:1408.5388 [astro-ph.GA].
 44. **Jo Bovy**, et al., The APOGEE red-clump catalog: Precise distances, velocities, and high-resolution elemental abundances over a large area of the Milky Way's disk, *Astrophys. J.* **790**, 12 (2014) arXiv:1405.1032 [astro-ph.GA].
 43. Michael R. Hayden, Jon A. Holtzman, **Jo Bovy**, et al., Chemical cartography with APOGEE: Large-scale mean metallicity maps of the Milky Way, *Astron. J.* **147**, 116 (2014) arXiv:1311.4569 [astro-ph.GA].
 42. Christopher P. Ahn, et al., The tenth Data Release of the Sloan Digital Sky Survey: first spectroscopic data from the SDSS-III Apache Point Observatory Galactic Evolution Experiment, *Astrophys. J. Supp.* **211**, 17 (2014) arXiv:1307.7735 [astro-ph.IM].
 41. Isabelle Pâris, et al., The Sloan Digital Sky Survey quasar catalog: tenth data release, *Astron. & Astrophys.* **563**, A54 (2014) arXiv:1311.4870 [astro-ph.CO].
 40. **Jo Bovy** & Hans-Walter Rix, A direct dynamical measurement of the Milky Way's disk surface density profile, disk scale length, and dark matter profile at $4 \text{ kpc} \lesssim R \lesssim 9 \text{ kpc}$, *Astrophys. J.* **779**, 115 (2013) arXiv:1309.0809 [astro-ph.GA].
 39. J. Xavier Prochaska, Joseph F. Hennawi, Khee-Gan Lee, Sebastiano Cantalupo, **Jo Bovy**, S.G. Djorgovski, Sara L. Ellison, Marie Wingyee Lau, Crystal L. Martin, Adam Myers, Kate H.R. Rubin, & Robert A. Simcoe, Quasars Probing Quasars VI. Excess H I Absorption within One Proper Mpc of $z \sim 2$ Quasars, *Astrophys. J.* **776**, 136 (2013) arXiv:1308.6222 [astro-ph.CO].
 38. G. S. Stinson, **J. Bovy**, H.-W. Rix, C. Brook, R. Roškar, J. D.alcanton, A. V. Macciò, J. Wadsley, H. M. P. Couchman, & T. R. Quinn, MaGICC Thick Disk I: Comparing a Simulated Disk Formed with Stellar Feedback to the Milky Way, *Mon. Not. Roy. Astron. Soc.* **436**, 625 (2013) arXiv:1301.5318 [astro-ph.GA].
 37. Yuan-Sen Ting, Hans-Walter Rix, **Jo Bovy**, & Glenn van de Ven, On the study of Galactic potential via action-based mono-abundance stars distribution function, *Mon. Not. Roy. Astron. Soc.* **434**, 652 (2013) arXiv:1212.0006 [astro-ph.GA].
 36. Nicholas P. Ross, et al., The SDSS-III Baryon Oscillation Spectroscopic Survey: The quasar luminosity

- function from data release nine, *Astrophys. J.* **773**, 14 (2013) arXiv:1210.6389 [astro-ph.CO].
35. Lan Zhang, Hans-Walter Rix, Glenn van de Ven, **Jo Bovy**, Chao Liu, & Gang Zhao, The gravitational potential near the Sun from SEGUE K-dwarf kinematics, *Astrophys. J.* **772**, 108 (2013) arXiv:1209.0256 [astro-ph.GA].
 34. Hans-Walter Rix & **Jo Bovy**, The Milky Way’s stellar disk: mapping and modeling the Galactic disk, *Astron. Astrophys. Rev.* **21**, 61 (2013) arXiv:1301.3168 [astro-ph.GA].
 33. Anže Slosar, et al., Measurement of baryon acoustic oscillations in the Lyman-alpha forest fluctuations in BOSS Data Release 9, *J. Cosmol. Astropart. Phys.* **4**, 26 (2013) arXiv:1301.3459 [astro-ph.CO].
 32. Nicolás G. Busca, et al., Baryon Acoustic Oscillations in the Ly α forest of BOSS quasars, *Astron. & Astrophys.* **552**, A96 (2013) arXiv:1211.2616 [astro-ph.CO].
 31. **Jo Bovy** & Cora Dvorkin, Low-mass suppression of the satellite luminosity function due to the supersonic baryon–cold-dark-matter relative velocity, *Astrophys. J.* **768**, 70 (2013) arXiv:1205.2083 [astro-ph.CO].
 30. Deokkeun An, Timothy C. Beers, Jennifer A. Johnson, Marc H. Pinsonneault, Young Sun Lee, **Jo Bovy**, Željko Ivezić, Daniela Carollo, & Matthew Newby, The stellar metallicity distribution function of the Galactic halo from SDSS photometry, *Astrophys. J.* **763**, 65 (2013) arXiv:1211.7073 [astro-ph.GA].
 29. Kyle S. Dawson, et al., The Baryon Oscillation Spectroscopic Survey of *SDSS-III*, *Astron. J.* **145**, 10 (2013) arXiv:1208.0022 [astro-ph.CO].
 28. Isabelle Pâris, et al., The Sloan Digital Sky Survey quasar catalog: ninth data release, *Astron. & Astrophys.* **548**, 66 (2012) arXiv:1210.5166 [astro-ph.CO].
 27. **Jo Bovy** et al., The Milky Way’s circular velocity curve between 4 and 14 kpc from APOGEE data, *Astrophys. J.* **759**, 131 (2012) arXiv:1209.0759 [astro-ph.GA].
 26. Christopher P. Ahn, et al., The ninth data release of the Sloan Digital Sky Survey: first spectroscopic data from the SDSS-III Baryon Oscillation Spectroscopic Survey, *Astrophys. J. Supp.* **203**, 21 (2012) arXiv:1207.7137 [astro-ph.IM].
 25. **Jo Bovy** & Scott Tremaine, On the local dark matter density, *Astrophys. J.* **756**, 89 (2012) arXiv:1205.4033 [astro-ph.GA].
 24. **Jo Bovy**, Hans-Walter Rix, David W. Hogg, Timothy C. Beers, Young Sun Lee, & Lan Zhang, The vertical motions of mono-abundance sub-populations in the Milky Way disk, *Astrophys. J.* **755**, 115 (2012) arXiv:1202.2819 [astro-ph.GA].
 23. Martin White, et al., The clustering of intermediate redshift quasars as measured by the Baryon Oscillation Spectroscopic Survey, *Mon. Not. Roy. Astron. Soc.* **424**, 933 (2012) arXiv:1203.5306 [astro-ph.CO].
 22. **Jo Bovy**, Hans-Walter Rix, Chao Liu, David W. Hogg, Timothy C. Beers, & Young Sun Lee, The spatial structure of mono-abundance sub-populations of the Milky Way disk, *Astrophys. J.* **753**, 148 (2012) arXiv:1111.1724 [astro-ph.GA].
 21. **Jo Bovy**, Hans-Walter Rix, & David W. Hogg, The Milky Way has no distinct thick disk, *Astrophys. J.* **751**, 131 (2012) arXiv:1111.6585 [astro-ph.GA].
 20. **Jo Bovy**, et al., Photometric redshifts and quasar probabilities from a single, data-driven generative model, *Astrophys. J.* **749**, 41 (2012) arXiv:1105.3975 [astro-ph.CO].
 19. Nicholas P. Ross, Adam D. Myers, Erin S. Sheldon, Christophe Yèche, Michael A. Strauss, **Jo Bovy**, et al., The *SDSS-III* Baryon Oscillation Spectroscopic Survey: Quasar target selection for Data Release Nine, *Astrophys. J. Supp.* **199**, 3 (2012) arXiv:1105.0606 [astro-ph.CO].
 18. Daniela Carollo, Timothy C. Beers, **Jo Bovy**, et al., Carbon-enhanced metal-poor stars in the inner and outer halo components of the Milky Way, *Astrophys. J.* **744**, 195 (2012) arXiv:1103.3067 [astro-ph.GA].
 17. Kasper B. Schmidt, Hans-Walter Rix, Joseph C. Shields, Matthias Knecht, David W. Hogg, Dan Maoz, & **Jo Bovy**, The color variability of quasars, *Astrophys. J.* **744**, 147 (2012) arXiv:1109.6653 [astro-ph.CO].
 16. Daniel J. Eisenstein, et al., *SDSS-III*: Massive spectroscopic surveys of the distant Universe, the Milky Way Galaxy, and extra-solar planetary systems, *Astron. J.* **142**, 72 (2011) arXiv:1101.1529 [astro-ph.IM].
 15. Dmitry Malyshev, **Jo Bovy**, & Ilias Cholis, Spherical harmonics analysis of Fermi gamma-ray data and the Galactic dark matter halo, *Phys. Rev. D* **84**, 023013 (2011) arXiv:1007.4556 [astro-ph].

14. **Jo Bovy**, David W. Hogg, & Sam T. Roweis, Extreme deconvolution: inferring complete distribution functions from noisy, heterogeneous and incomplete observations, *Ann. Appl. Stat.* **5**, 2B, 1657 (2011) arXiv:0905.2979 [stat.ME].
13. Hiroaki Aihara, et al., The eighth data release of the Sloan Digital Sky Survey: first data from SDSS-III, *Astrophys. J. Supp.* **193**, 29 (2011) arXiv:1101.1559 [astro-ph]; Erratum *Astrophys. J. Supp.* **195**, 26 (2011).
12. **Jo Bovy**, et al., Think outside the color box: probabilistic target selection and the *SDSS-XDQSO* quasar targeting catalog, *Astrophys. J.* **729**, 141 (2011) arXiv:1011.6392 [astro-ph].
11. David W. Hogg, Adam D. Myers, & **Jo Bovy**, Inferring the eccentricity distribution, *Astrophys. J.* **725**, 2166 (2010) arXiv:1008.4146 [astro-ph].
10. **Jo Bovy**, Tracing the Hercules stream around the Galaxy, *Astrophys. J.* **725**, 1676 (2010) arXiv:1006.0736 [astro-ph].
9. **Jo Bovy** & David W. Hogg, The velocity distribution of nearby stars from Hipparcos data II. The nature of the low-velocity moving groups, *Astrophys. J.* **717**, 617 (2010) arXiv:0912.3262 [astro-ph].
8. **Jo Bovy**, Iain Murray, & David W. Hogg, Dynamical inference from a kinematic snapshot: The force law in the Solar System, *Astrophys. J.* **711**, 1157 (2010) arXiv:0903.5308 [astro-ph].
7. **Jo Bovy**, David W. Hogg, & Hans-Walter Rix, Galactic masers and the Milky Way circular velocity, *Astrophys. J.* **704**, 1704 (2009) arXiv:0907.5423 [astro-ph].
6. **Jo Bovy**, David W. Hogg, & Sam T. Roweis, The velocity distribution of nearby stars from Hipparcos data I. The significance of the moving groups, *Astrophys. J.* **700**, 1794 (2009) arXiv:0905.2980 [astro-ph].
5. **Jo Bovy**, Substructure boosts to dark matter annihilation from Sommerfeld enhancement, *Phys. Rev. D* **79**, 083539 (2009) arXiv:0903.0413 [astro-ph].
4. Surhud More, **Jo Bovy**, & David W. Hogg, Cosmic transparency: A test with the baryon acoustic feature and type Ia supernovae, *Astrophys. J.* **696**, 1727 (2009) arXiv:0810.5553 [astro-ph].
3. **Jo Bovy** & Glennys R. Farrar, Connection between a possible fifth force and the direct detection of dark matter, *Phys. Rev. Lett.* **102**, 101301 (2009) arXiv:0807.3060 [hep-ph].
2. **Jo Bovy**, David W. Hogg, & John Moustakas, The transparency of galaxy clusters, *Astrophys. J.* **688**, 198 (2008) arXiv:0805.1200 [astro-ph].
1. **Jo Bovy**, Dieter Lüst, & Dimitrios Tsimpis, $N = 1, 2$ Supersymmetric vacua of *IIA* supergravity and $SU(2)$ structures, *J. High Energy Phys.* **08**, 056 (2005) arXiv:hep-th/0506160.

PUBLICATIONS IN PREPARATION

- Carles Badenes, Christine Mazzola, Todd A. Thompson, Kevin Covey, Peter E. Freeman, Matthew G. Walker, Maxwell Moe, Nicholas Troup, David Nidever, Carlos Allende Prieto, Brett Andrews, Rodolfo H. Barbá, Timothy C. Beers, **Jo Bovy**, et al., Stellar multiplicity meets stellar evolution and metallicity: The APOGEE view, *Astrophys. J.*, *submitted* (2017) arXiv:1711.00660 [astro-ph.GA].
- Lauren Anderson, David W. Hogg, Boris Leistedt, Adrian M. Price-Whelan, & Jo Bovy, Improving *Gaia* parallax precision with a data-driven model of stars, *Astron. J.*, *submitted* (2017) arXiv:1706.05055 [astro-ph.GA].

UNREFEREED PUBLICATIONS

- Juna A. Kollmeier, Gail Zasowski, Hans-Walter Rix, et al., SDSS-V: Pioneering Panoptic Spectroscopy (2017) arXiv:1711.03234 [astro-ph.GA].
- J. Ted Mackereth, **Jo Bovy**, Ricardo P. Schiavon, & the SDSS-IV/APOGEE Collaboration, The age-metallicity structure of the Milky Way disc with APOGEE, in *Rediscovering our Galaxy*, eds. C. Chiappini, I. Minchev, E. Starkenburg, M. Valentini, Proceedings of the International Astronomical Union, IAU Symposium, **334** (2017) arXiv:1708.05399 [astro-ph.GA].

- Alan McConnachie, Carine Babusiaux, Michael Balogh, Simon Driver, Pat Côté, Helene Courtois, Luke Davies, Laura Ferrarese, Sarah Gallagher, Rodrigo Ibata, Nicolas Martin, Aaron Robotham, Kim Venn, Eva Villaver, **Jo Bovy**, et al., The Detailed Science Case for the Maunakea Spectroscopic Explorer: the Composition and Dynamics of the Faint Universe (2016) arXiv:1606.00043 [astro-ph.IM].
- Jo Bovy**, What drives the evolution of the Milky Way’s disk?, in The Milky Way Unravelling by Gaia: GREAT Science from the Gaia Data Releases, eds. N. A. Walton, F. Figueras, L. Balaguer-Núñez and C. Soubiran, EAS Publications Series, **67–68**, 331 (2014) DOI.
- Jo Bovy**, Constraining dynamical models with observational data, in Setting the scene for Gaia and LAMOST, Proceedings of the International Astronomical Union, IAU Symposium, **298**, 185 (2014) DOI.
- David W. Hogg, **Jo Bovy**, & Dustin Lang, Data analysis recipes: Fitting a model to data (2010) arXiv:1008.4686 [astro-ph].
- Jo Bovy**, The self-energy of the electron: a quintessential problem in the development of QED (2006) arXiv:physics/0608108.

MISCELLANEOUS

Large variety of research code available on GitHub: <http://github.com/jobovy>, e.g.,

- Jo Bovy**, 2010–current, *galpy* Galactic dynamics codebase, BSD license (<http://github.com/jobovy/galpy>; <http://galpy.readthedocs.org/en/latest/>).
- Jo Bovy**, 2012–current, *apogee* Very general set of tools for dealing with APOGEE high-resolution spectroscopic data and generating synthetic spectra, BSD license (<http://github.com/jobovy/apogee>).
- Jo Bovy**, David W. Hogg, & Sam Roweis, 2009, *extreme-deconvolution* codebase, BSD license, (<http://github.com/jobovy/extreme-deconvolution>).

TEACHING EXPERIENCE

University of Toronto:

- AST1420:** Galactic Structure and Dynamics (graduate; Fall 2017)
- AST3100:** Mini-course on Statistics and Inference in Astrophysics (graduate; Winter 2016)
- AST222:** Galaxies and Cosmology (undergraduate; Winter 2016)
- PMU199:** Great Astronomical Issues (undergraduate; Fall 2015)

Summer schools:

- Lecturer**, Petnica Summer Institute Summer School on Astrophysics and Astroparticles, Serbia, 2015
Three lectures on *galaxies*
- Lecturer**, SLAC Summer Institute “Shining Light on Dark Matter”, 2014
Lecture: *Dark matter in the Milky Way*
- Invited Speaker and Teaching Assistant**, International Max Planck Research School for Astronomy and Cosmic Physics at the University of Heidelberg (IMPRS-HD), 2009
Topic: *Statistical Inferences from Astrophysical Data*
Science talk “Inference in action: the force law in the Solar System” and preparation and assistance of lab exercises at a summer school aimed at graduate students and postdocs

TALKS

list available upon request