

KIMBERLY R. SOKAL

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EMPLOYMENT

2019–present	Insight Data Science Fellow
2019–present	Research Affiliate-Postdoctoral Fellow (University of Texas at Austin)
2016–2018	IGRINS Postdoctoral Fellow (University of Texas at Austin): I maintain and am the science lead for the Immersion GRating Infrared Spectrograph (IGRINS)
2010–2016	Graduate Student Research Assistant (University of Virginia)
2010–2014	Graduate Student Teaching Assistant (University of Virginia)
2007–2010	Undergraduate Research Assistant (University of Colorado)

EDUCATION

2016	Ph.D. Astronomy , University of Virginia <i>Massive Star Cluster Evolution in Action: The Extreme Environmental Impacts of Wolf-Rayet Stars</i>
2012	M.S. Astronomy , University of Virginia
2009	B.A. Astrophysics and Physics , University of Colorado

RESEARCH

Research Experience

2016–present	IGRINS Postdoc/Research Affiliate: I am investigating our understanding of the evolutionary classes of Young Stellar Objects through comparisons of high spectral resolution infrared spectra obtained with IGRINS to stellar synthesis models including magnetic effects (Mentor: Dan Jaffe).
2010–2016	Graduate Student Research Assistant: I studied the impact of a population of Wolf-Rayet Stars on the early evolution of Super Star Clusters by utilizing obtained optical spectra, archival optical and infrared imaging, and published radio data (Advisor: Kelsey Johnson)
2007–2010	Undergraduate Research Assistant: I analyzed X-ray and infrared observations of galactic Wolf-Rayet stars and young star forming regions (Advisor: Stephen Skinner)

HONORS, AWARDS, AND GRANTS

2016	Recipient of Sigma Xi Grants-in-Aid of Research
2016	Rodger Doxsey Travel Prize Honorable Mention
2015	Recipient of an IAU Grant
2015	Recipient of the AAS International Travel Grant
2015	Ford Foundation Fellowship Honorable Mention
2014	Virginia Space Grant Consortium Graduate STEM Research Fellow
2013	Recipient of Sigma Xi Grants-in-Aid of Research
2013	NOAO Student Observing Support
2013	Virginia Space Grant Consortium Graduate STEM Research Fellow
2012	Laurence W. Fredrick Award for Excellence as a Graduate Teaching Assistant: one award given annually from the Astronomy Department at UVa
2012	Teaching Resource Center “Outstanding Graduate Teaching Assistant Award”: awarded only every three years in the Astronomy Department at UVa.
2009	John R. Little Scholarship: University of Colorado
2005–2009	L.S. Woods Scholarship
2005	Storm King 14 Memorial Scholarship

Publications: Refereed Journal Articles (First and Second Author)

- Sokal, K.R., Johns-Krull, C.M., Mace, G.N., Prato, L., Nofi, L., Lee, J.-J., & Jaffe, D.T., 2019, submitted to AAS journals. *The Mean Magnetic Field Strength of CI Tau*
- Skinner, S.L., Sokal, K.R., & Güdel, M. 2018, accepted to ApJ. *Chandra Observations of the Massive Star-Forming Region Onsala 2*
- Sokal, K.R., Deen, C.P., Mace, G.N., Lee, J.-J., Oh, H., Kim, H., Kidder, B.T., & Jaffe, D.T. 2018, ApJ, 853, 120. *Characterizing TW Hydra*
- Sokal, K.R., Johnson, K.E., Indebetow, R., & Massey, P. 2016, ApJ, 826, 194. *The Prevalence and Impact of Wolf-Rayet Stars in Emerging Massive Star Clusters*
- Sokal, K.R., Johnson, K.E., Indebetow, R., & Reines, A.E. 2015, AJ, 149, 115. *An Emerging Wolf-Rayet Superstar Cluster in NGC 4449*
- Sokal, K.R., Skinner, S.L., Zhekov, S.A., Güdel, M., & Schmutz, W. 2010, ApJ, 714, 1327. *Chandra Detects the Rare Oxygen-type Wolf-Rayet Star WR 142 and OB Stars in Berkeley 87*
- Skinner, S.L., Sokal, K.R., Megeath, S.T., Güdel, M., Audard, M., Flaherty, K.M., Meyer, M.R., & Daminieli, A. 2009, ApJ, 701, 710. *Chandra and Spitzer Imaging of the Infrared Cluster in NGC 2071*
- Skinner, S.L., Sokal, K.R., Güdel, M., & Briggs, K. 2009, ApJ, 696, 766. *X-ray Emission from the FU Orionis Star V1735 Cygni*
- Skinner, S.L., Sokal, K.R., Cohen, D.H., Gagné, M., Owocki, S.P., & Townsend, R.D. 2008, ApJ, 683, 796. *High-Resolution Chandra X-ray Imaging and Spectroscopy of the Sigma Orionis Cluster*

Contributed Talks

- *Characterizing Young Stars with IGRINS*, NRAO/UVA Colloquium, Charlottesville, VA, October, 2018
 - *IGRINS (the Traveling Spectrometer) and What It Can Tell Us About YSOs*, The Postdoc Colloquium at UT, Austin, TX, March, 2017
 - *An Evolutionary Transition of Massive Star Clusters: Emerging Wolf-Rayet Clusters*, 227th AAS Meeting, Kissimmee, FL, January, 2016
 - *Wolf-Rayet Ionization and Feedback as the Tipping Point in Super Star Cluster Emergence*, IAUS 316 – Formation, Evolution, and Survival of Massive Star Clusters, Honolulu, Hawaii, 11 August, 2015
 - *The Importance of Wolf-Rayet Ionization and Feedback on Super Star Cluster Evolution*, International Workshop on Wolf-Rayet Stars 2015, Potsdam, Germany, 1 June, 2015
- Proceedings: **Sokal, K.R.**, Johnson, K.E., Massey, P., & Indebetouw, R. 2015, arxiv:1508.00572
- *Emerging Super Star Clusters With Wolf-Rayet Stars*, The 2015 VSGC Student Research Conference, Hampton, VA, 17 April, 2015
 - *Emerging Super Star Clusters*, The 2015 Huskey Research Exhibition, Charlottesville, VA, 23 March, 2015
 - *Embedded Super Star Clusters with Emerging Wolf-Rayet Stars*, The 2014 VSGC Student Research Conference, Hampton, VA, 11 April, 2014
 - *An Emerging Wolf-Rayet Superstar Cluster in NGC 4449*, DC-MD-VA Astrophysics Summer Meeting, College Park, MD, 28 June, 2013

Poster Presentations

- **Sokal, K.R.** et al., Cool Stars 20, Boston, MA, 29 July - 3 August, 2018. *IGRINS for the characterization of YSOs*
- **Sokal, K.R.** et al., Massive Young Star Clusters Near and Far: From the Milky Way to Re-ionization, Puebla, Mexico, 2-6 December, 2013. *An Emerging Wolf-Rayet Superstar Cluster in NGC 4449*
- **Sokal, K.R.** et al., Massive Stars: From Alpha to Omega, Rhodes, Greece, 10-14 June, 2013. *An Emerging Wolf-Rayet Superstar Cluster in NGC 4449*
- **Sokal, K.R.** et al., 221st AAS Meeting, Long Beach, CA, 6-10 January, 2013. *An Emerging Wolf-Rayet Superstar Cluster in NGC 4449*
- **Sokal, K.R.** et al., 216th AAS Meeting, Miami, FL, 23-27 May, 2010. *Chandra X-ray Observations of the Onsala 2 (ON2) Star-Forming Region*
- Skinner, S.L., **Sokal, K.R.** et al., 215th AAS Meeting, Washington, D.C., 3-7 January, 2010. *Chandra X-ray Observations of the Young Stellar Cluster Berkeley 87 and its Oxygen-type Wolf-Rayet Star WR 142*
- **Sokal, K.R.** et al., 213th AAS Meeting, Long Beach, CA, 4-8 January, 2009. *The X-ray Population in the Infrared Cluster in NGC 2071 as Observed by Chandra*
- **Sokal, K.R.** et al., 211st AAS Meeting, Austin, TX, 3-7 January, 2008. *The Chandra ACIS X-ray View of Young Stars in the Sigma Orionis Cluster*

Telescope Experience and PI-ed Observing Time

2018	IGRINS Gemini science facilitator – 8.1m Gemini South (Gemini Observatory): For 50 observing nights and commissioning, I oversaw all 21 IGRINS community programs (US, CA, AR, and KR), including the technical review, OT development and Phase II review, planning, and management
2018	8.1m Gemini South (Gemini Observatory): 30 nights using IGRINS
2016–2018	4.3m Discovery Channel Telescope (Lowell Observatory): 49 nights using IGRINS
2017	2.7m Harlan J. Smith Telescope (McDonald Observatory): 12 nights using IGRINS
2014A	PI – CARMA (Combined Array for Research in Millimeter-wave Astronomy): 12 hours in C and D configurations at 3mm
2013A	PI – 4m Mayall Telescope (Kitt Peak National Observatory): 4 nights with the R-C Spectograph
2013A	PI – 6.5m MMT (Fred Lawrence Whipple Observatory): 3 nights with Hectospec, a multifiber spectograph
2011–2015	PI – 3.5m Telescope at Apache Point Observatory: 0.5 nights with SPICam (imager), 0.5 nights with DIS (Dual Imaging Spectograph), 0.5 nights shared-risk time with the Goddard Imager and Lenslet Array

TEACHING AND OUTREACH

Teaching Experience

2011–2012	Head TA for the academic year: supervisor of all the TAs and the faculty intermediary for the Astronomy Department
Fall 2014	Head Constellation Quiz TA: in charge of the content and was the supervisor of all the TAs running this undergraduate, non-major lab
2011–2014	Course TA: essential component to the given class ◦ ASTR 1270 <i>Unsolved Mysteries of the Universe</i> (Prof. Johnson): Held office hours, guest lectured, and graded homework (170 student class) ◦ ASTR 2110 <i>General Astronomy</i> (Prof. Chevalier): Led weekly discussion, held office hours, and graded homework - part I ◦ ASTR 2120 <i>General Astronomy</i> (Prof. Sarazin): Led weekly discussion, held office hours, and graded homework - part II
2010–2014	TA for nightlabs: three different labs at various academic levels. Telescope Observing and Constellation Quiz for non-major classes ASTR 1210/1220 <i>Introduction to Astronomy</i> . ASTR 1230 <i>Introduction to Astronomical Observing</i> is a semester-long course of telescope observing with multiple labs.
2010–2013	Support TA: offers assistance to the professor, such as proctoring exams, uploading grades, etc. ◦ ASTR 1210/1220 <i>Introduction to Astronomy</i> (Prof. Evans) ◦ ASTR 1210/1220 <i>Introduction to Astronomy</i> (Prof. Skrutskie, Prof. Whittle)

Education and Public Outreach Experience

2017–2018	Girl Day at UT: An annual day of activities encouraging girls (ages 4 - 15) in all things STEM. I helped with activities for the Astronomy booth
2017	Astronomy on Tap ATX: Invited talk in Austin, TX, June 2017. Title: <i>How we can use the infrared with IGRINS</i> , https://www.youtube.com/watch?v=TrfJKyJn158
2013–present	AAS Astronomy Ambassador: I belong to the first class of Ambassadors, which began with a two-day workshop and has an ongoing forum and network for early-career Astronomers in the EPO community
2010–2016	Dark Skies, Bright Kids: At UVa, I was a leader among dedicated volunteers bringing astronomy to underserved students in central VA by promoting curiosity and awe for the Universe via fun, hands-on activities. By forming relationships with students through our backbone program, an 8-10 week club at different elementary/middle school each semester, we foster a lifelong interest in science. I was the leading volunteer for two years, have written successful proposals for grants, trained many volunteers, solely organized events, have expertise with many hands-on activities, and can run our portable planetarium. <i>~50 events</i>
2010–2016	Public Nights: I gave talks and interacted with the public at Astronomy Department public nights at our local Fan Mountain and McCormick Observatories at UVa

Education & Public Outreach Press, Academic Presentations, and Articles

	• Sandra E. Liss, Kimberly R. Sokal, Rachael L. Beaton, Kelsey E. Johnson, & the DSBK Team, 2016, submitted to the AAS Education Task Force. <i>Dark Skies, Bright Kids! and the Value of Repeated Interactions with Elementary School Students</i> – white paper • Kimberly Sokal & Sandra Liss, 2014, Mercury Magazine, 43, 3. <i>Making Science Fun: The “Dark Skies, Bright Kids” Program</i> – magazine article • Beaton, R.L., King, J., Johnson, K., & Sokal, K.R. 2014, ASP 126. <i>How to get the most bang from your volunteer hour: Assessments in Dark Skies, Bright Kids</i> – contributed talk • Beaton, R.L., King, J., Johnson, K., & Sokal, K.R. 2014, ASP 126. <i>Snapshots of the Universe</i>, – contributed poster • Sokal, K.R., Johnson, K.E., et al. 2013, AAS 221st Meeting, 246.02 <i>Dark Skies, Bright Kids! Year 4</i> – contributed poster
2010-2016	Various posters at the AAS meetings: updates on the DSBK program
2012-2014	Various press for DSBK’s Annual Central VA Star Party: WNRN (independent radio) recorded a ‘Community Connection’, WTJU (soundboard radio) live in-station interview WMRN (radio news) live in-station interview, WCAV (television news) live interview

PROFESSIONAL SKILLS AND SERVICE

Instrumentation Skills

	Installation, removal, and commissioning at various telescopes
	Clean room experience
	Routine maintenance: cabling, O-ring maintenance, coldhead replacement

Computing Training and Skills

	Insight Data Science Fellow: Seattle, WA, January, 2019: 7 week post-doctoral training to transition from academia to data science
	SciCoder Workshop Attendee: New York City, New York, 23-27 June, 2014: One week data management and analysis workshop
	Languages: UNIX, idl, python
	Tools: IRAF, ds9, L ^A T _E X, IGRINS pipeline

Academic Service

2017	BashFest (UT postdoc colloquium): SOC member
2016	UVa reviewer for Virginia Space Grant Consortium proposals
2011–2014	AstroTURF(Astronomy Talks Uniting Research Fields): I started, organized, and led a weekly graduate student journal club at UVa

Professional Affiliations

2016–present	Sigma Xi Member: the scientific research society
2008–present	American Astronomical Society Member
2008–present	Phi Beta Kappa Member: the nation's oldest academic honor society
2010–2016	CV Star Formation Group: (UVa and NRAO collaboration)
2013	Astronomical Society of the Pacific