

Dr. Adam Francis Kowalski

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Education

Ph.D., Astronomy, University of Washington, August 17th, 2012 (thesis advisor: Suzanne L. Hawley)
M.S., Astronomy, University of Washington, 2008
B.A., Physics with Honors, University of Chicago, 2006 (thesis advisor: Dietrich Muller)

Recent Employment History

8/15/2016 - present: Assistant Professor, University of Colorado Boulder, Department of Astrophysical and Planetary Sciences and the National Solar Observatory, and LASP
9/2014 - 8/2016 : Research Associate, University of Maryland Department of Astronomy and NASA/Goddard Space Flight Center Heliophysics Science Division
2012 - 2014 : Oak Ridge Associated Universities Postdoctoral Program (NPP) Fellow at NASA's Goddard Space Flight Center Heliophysics Science Division (supervisor: Joel Allred)

Refereed Publications (47, h-index = 22)

Kowalski, A.F., Wisniewski, J.P., Hawley, S.L., Osten, R.A., Brown, A., Farina, C., Valenti, J.A., Brown, S., Xilouris, M., Schmidt, S.J. and Johns-Krull, C. 2019, "The Near-ultraviolet Continuum Radiation in the Impulsive Phase of HF/GF-type dMe Flares. I. Data", *Astrophysical Journal*, 871, 167 (23 pp). DOI: 10.3847/1538-4357/aaf058

Kowalski, A. F. & Allred, J.C. 2017 "Parameterizations of Chromospheric Condensations in dG and dMe Model Flare Atmospheres" *Astrophysical Journal* 852, 16 (19 pp).

Kowalski, A. F., Allred, J.C., Uitenbroek, H., Tremblay, P.E., Brown, S., Carlsson, M., Osten, R.A., Wisniewski, J.P., Hawley, S.L., 2017 "Hydrogen Balmer Line Broadening in Solar and Stellar Flares" *Astrophysical Journal* 837, 125 (22 pp).

Kowalski, A. F., Allred, J. C., Daw, A. N., Cauzzi, G., Carlsson, M., 2017, "The Atmospheric Response to High Nonthermal Electron Beam Fluxes in Solar Flares I: Modeling the Brightest NUV Footpoints in the X1 Solar Flare of 2014 March 29", *Astrophysical Journal* 836, 12 (27 pp).

Kowalski, A.F., Mathioudakis, M., Hawley, S. L., Wisniewski, J. P., Dhillon, V. , Marsh, T. R., Hilton, E. J., Brown, B. P. 2016, "M Dwarf Flare Continuum Variations on One-Second Timescales: Calibrating and Modeling of ULTRACAM Flare Color Indices" *The Astrophysical Journal*, ApJ 820, 95, DOI: 10.3847/0004-637X/820/2/95

Kowalski, A.F., Hawley, S.L., Carlsson, M., Allred, J.C., Uitenbroek, H., Osten., R.A., Holman, G. 2015, "New Insights into White-Light Flare Emission from Radiative Hydrodynamic Modeling of a Chromospheric Condensation," *Solar Physics* 290, 3487, DOI: 10.1007/s11207-015-0708-x

- Kowalski, A.F.**, Cauzzi, G., and Fletcher, L. 2015, "Optical Spectral Observations of a Flickering White-Light Kernel in a C1 Solar Flare", *Astrophysical Journal* 798, 107
- Kowalski, A.F.**, Hawley, S.L., Wisniewski, J.P., Osten, R.A., Hilton, E.J., Holtzman, J.A., Schmidt, S.J., Davenport, J.R.A. 2013, "Time-Resolved Properties and Global Trends in dMe Flares from Simultaneous Photometry and Spectra", *Astrophysical Journal Supplement Series*, 207, 1
- Kowalski, A.F.**, Hawley, S.L., Holtzman, J.A., Wisniewski, J.P., Hilton, E.J. 2012, "The Multiple Continuum Components in the White Light Flare of 16 January 2009 on the dM4.5e Star YZ CMi", *Solar Physics* 277, 21-29
- Kowalski, A.F.**, Hawley, S.L., Holtzman, J.A., Wisniewski, J.P., Hilton, E.J. 2010, "A White Light Megaflare on the dM4.5e Star YZ CMi", *Astrophysical Journal Letters*, 714L, 98-102
- Kowalski, A.F.**, Hawley, S.L., Hilton, E.J., Becker, A.C., West, A.A., Bochanski, J.J., Sesar, B. 2009, "M Dwarfs in Sloan Digital Sky Survey Stripe 82: Photometric Light Curves and Flare Rate Analysis", *Astronomical Journal*, 138, 633-648
- Brown, Stephen A.; Fletcher, Lyndsay; Kerr, Graham S.; Labrosse, Nicolas; **Kowalski, Adam F.**; De La Cruz Rodríguez, Jaime, 2018 "Modeling of the Hydrogen Lyman Lines in Solar Flares", *Astrophysical Journal*, 862 59.
- MacGregor, Meredith A.; Weinberger, Alycia J.; Wilner, David J.; **Kowalski, Adam F.**; Cranmer, Steven R. 2018 "Detection of a Millimeter Flare from Proxima Centauri", *Astrophysical Journal Letters* 855, L2.
- Prochazka O, Milligan RO, Allred JC, **Kowalski A. F.**, Kotrc P, Mathioudakis M. 2017 "Suppression of Hydrogen Emission in an X-class White-light Solar Flare." *Astrophysical Journal* 837, 46.
- Youngblood A, France K, Loyd ROP, Brown A, Mason JP, Schneider PC, Tilley MA, Berta-Thompson ZK, Buccino A, Froning CS, et. al. (**Kowalski**) 2017 "The MUSCLES Treasury Survey. IV. Scaling Relations for Ultraviolet, CaII K, and Energetic Particle Fluxes from M Dwarfs." *Astrophysical Journal* 843, 31.
- Berdyugina SV, Harrington DM, Kuzmychov O, Kuhn JR, Hallinan G, **Kowalski AF**, Hawley SL. 2017 "First Detection of a Strong Magnetic Field on a Bursty Brown Dwarf: Puzzle Solved." *Astrophysical Journal* 847, 61.
- Reid, A.; Mathioudakis, M.; **Kowalski, A.**; Doyle, J. G.; Allred, J. C., 2017 "Solar Ellerman Bombs in 1D Radiative Hydrodynamics" *Astrophysical Journal Letters* 835, 37.

Osten, R. A., **Kowalski, A. F.**, Drake, S., Krimm, H., Page, K., Gazeas, K., Kennea, J., Oates, S., Page, M., de Miguel, E., Novak, R., Apeltauer, T., Gehrels, N., 2016, “A Very Bright, Very Hot, and Very Long Flaring Event from the M Dwarf Binary System DG CVn”, *Astrophysical Journal* 832, 174

Kuridze, D.; Mathioudakis, M.; Christian, D. J.; **Kowalski, A. F.**; Jess, D. B.; Grant, S. D. T.; Kawate, T.; Simões, P. J. A.; Allred, J. C.; Keenan, F. P. 2016, “Observations and simulations of the Na I D1 line profiles in an M-class solar flare”, *Astrophysical Journal*, 832 147

Silverberg, Steven M.; **Kowalski, Adam F.**; Davenport, James R. A.; Wisniewski, John P.; Hawley, Suzanne L.; Hilton, Eric J. 2016, “Kepler Flares IV: A Comprehensive Analysis of the Activity of the dM4e Star GJ 1243”, *Astrophysical Journal*, 829 129

Harra, L., Schrijver, K., Janvier, M., Toriumi, S., Hudson, H., Matthews, S., Woods MM, Hara H, Guedel M, **Kowalski A.**, Osten, R.A., Kusano, K., Lueftinger, T. 2016, “The Characteristics of Solar X-Class Flares and CMEs: A Paradigm for Stellar Superflares and Eruptions?” *SoPh* 291, 1761.

France, K., R. O. Parke Loyd,, Allison Youngblood, Alexander Brown, P. Christian Schneider, Suzanne L. Hawley, Cynthia S. Froning, Jeffrey L. Linsky, Aki Roberge, Andrea P. Buccino, James R. A. Davenport,19, Juan M. Fontenla, Lisa Kaltenegger, **Adam F. Kowalski**, Pablo J. D. Mauas, Yamila Miguel, Seth Redfield, Sarah Rugheimer, Feng Tian, Mariela C. Vieytes, Lucianne M. Walkowicz, and Kolby L. Weisenburger 2016, “MUSCLES Treasury Survey I: Motivation and Overview”, *Astrophysical Journal* 820, 2

Allred, J. C., **Kowalski, A. F.**, & Carlsson, M. 2015, “A Unified Computational Model for Solar and Stellar Flares”, *Astrophysical Journal* 809, 104

Kuridze, D. Mathioudakis, M., Simoes, P. J. A., Rouppe van der Voort, L., Carlsson, M., Jafarzadeh, S., Allred, J. C., **Kowalski, A. F.**, Fletcher, L, Graham, D., Keenan, F. P. 2015, “H alpha Line Profile Asymmetries and the Chromospheric Flare Velocity Field”, *Astrophysical Journal* 813, 125.

Brown, Alexander; Neff, James E.; Ayres, Thomas R.; **Kowalski, Adam**; Hawley, Suzanne; Berdyugina, Svetlana; Harper, Graham M.; Korhonen, Heidi; Piskunov, Nikolai; Saar, Steven; Walkowicz, Lucianne; Wells, Mark A. 2015, *Astronomical Journal* 149, 67

Loebman, S.R., Wisniewski, J.P., Schmidt, S.J., **Kowalski, A.F.**, Barry, R.K., Bjorkman, K.S., Hammel, H.B., Hawley, S.L., Hebb, L., Kasliwal, M.M., Lynch, D.K., Russell, R.W., Sitko, M.L., Szkody, P. 2015, “The continued optical to mid-IR evolution of V838 Monocerotis”, *Astronomical Journal*, 149, 17

Lurie, John C.; Davenport, James R. A.; Hawley, Suzanne L.; Wilkinson, Tessa D.; Wisniewski, John P.; **Kowalski, Adam F.**, Hebb, Leslie, 2014 *Astrophysical Journal* 800, 95

Hawley, S.L., Davenport, J.R.A., **Kowalski, A.F.**, Wisniewski, J.P., Hebb, L., Deitrick, R., Hilton, E.J. 2014, “Kepler Flares I. Active and Inactive M dwarfs”, *Astrophysical Journal*, 797, 121

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Kuridze, D.; Mathioudakis, M.; **Kowalski, A. F.**; Keys, P. H.; Jess, D. B.; Balasubramaniam, K. S.; Keenan, F. P. 2013, “Failed filament eruption inside a coronal mass ejection in active region 11121”, *Astronomy & Astrophysics* 552, 55

Poppenhaeger, K.; Günther, H. M.; Beiersdorfer, P.; Brickhouse, N. S.; Carter, J. A.; Hudson, H. S.; **Kowalski, A.**; Lalitha, S.; Miceli, M.; Wolk, S. J. 2013, “Non-thermal processes in coronae and beyond”, *Astronomische Nachrichten* 334, 101

Osten, R. A., **Kowalski, A. F.**, Sahu, K., Hawley, S. L. 2012, “DRAFTS: A Deep, Rapid Archival Flare Transient Search of the Galactic Bulge”, *Astrophysical Journal* 754, 4

Hunt-Walker, Nicholas M.; Hilton, Eric J.; **Kowalski, Adam F.**; Hawley, Suzanne L.; Matthews, Jaymie M. 2012, “MOST Observations of the Flare Star AD Leo”, *Publications of the Astronomical Society of the Pacific* 124, 545

Schmidt, S. J., **Kowalski, A. F.**, Hawley, S. L., Hilton, E. J., Wisniewski, J. P., Tofflemire, B. M., 2012, “Probing the Flare Atmospheres of M Dwarfs using Infrared Emission Lines”, *Astrophysical Journal* 745-754, 14

Tofflemire, B. M., Wisniewski, J. P., **Kowalski, A. F.**, Schmidt, S. J., Kundurthy, P., Hilton, E. J., Holtzman, J. A., Hawley, S. L., 2012, “The Implications of M Dwarf Flares on the Detection and Characterization of Exoplanets at Infrared Wavelengths”, *Astronomical Journal* 143-154, 12

Milligan, R. O., Chamberlin, P. C., Hudson, H. S., Woods, T. N., Mathioudakis, M., Woods, Fletcher, L., **Kowalski, A. F.**, Keenan, F. P. 2012, “Observations of Enhanced Free-Bound Continua During an X-Class Solar Flare Using SDO/EVE”, *Astrophysical Journal Letters* 748, 14

Davenport, J. R. A., Becker, A. C., **Kowalski, A.F.**, Hawley, S.L., Schmidt, S.J., Hilton, E.J., Sesar, B., Cutri, R. 2012, “Multi-wavelength characterization of stellar flares on low-mass stars using SDSS and 2MASS time domain surveys”, *Astrophysical Journal* 748, 58

Becker, A. C., Bochanski, J. J., Hawley, S. L., Ivezić, Ž., **Kowalski, A. F.**, Sesar, B., West, A. A. 2011, “Periodic Variability of Low-mass Stars in Sloan Digital Sky Survey Stripe 82”, *Astrophysical Journal*, 731, 17-33

West, A.A., Morgan, D.P., Bochanski, J.J., Andersen J.M., Bell, K.J., **Kowalski, A.F.**, Davenport, J.R.A., Hawley, S.L., Schmidt, S.J., Bernat, D., and 10 coauthors 2011, “The Sloan Digital Sky Survey Data Release 7 Spectroscopic M Dwarf Catalog. I. Data”, *Astronomical Journal*, 141, 97-108

Hilton, E.J., West, A.A., Hawley, S.L., **Kowalski, A.F.** 2010, “M Dwarf Flares from Time-resolved Sloan Digital Sky Survey Spectra”, *Astronomical Journal*, 140, 1402-1413

Bond, N.A., Ivezić, Z., Sesar, B., Jurić, M., Munn, J.A., **Kowalski, A.F.**, Loebman, S., Roškar, R., Beers, T.C., Dalcanton, J., and 47 coauthors, 2010, “The Milky Way Tomography with SDSS. III. Stellar Kinematics”, *Astrophysical Journal*, 715, 1-29

Wisniewski, J.P., Draper, Z.H., Bjorkman, K.S., Meade, M.R., Bjorkman, J.E., **Kowalski, A.F.** 2010, “Disk-Loss and Disk-Renewal Phases in Classical Be Stars. I. Analysis of Long-Term Spectropolarimetric Data”, *Astrophysical Journal*, 709, 1306-1320

Parker, A.; Ivezić, Ž.; Jurić, M.; Lupton, R.; Sekora, M. D.; **Kowalski, A.F.** 2008, “The size distributions of asteroid families in the SDSS Moving Object Catalog 4”, *Icarus*, 198, 138-155

Wisniewski, J. P., **Kowalski, A. F.**, Bjorkman, K. S., Bjorkman, J. E., Carciofi, A. C. 2007, “Toward Mapping the Detailed Density Structure of Classical Be Circumstellar Disks”, *Astrophysical Journal*, 656, 21-24

Selected Conference Proceedings, Conference Posters, and White Papers (Total 60+)

Kowalski, Adam F., Mathioudakis, M., & Hawley, S.L., 2018 “The Evolution of $T = 10,000$ K Blackbody-Like Continuum Radiation in the Impulsive Phase of dMe Flares”, Conference Proceedings to the Cambridge Workshops of Cool Stars, Stellar Systems and the Sun #20 (Cool Stars 20, July 29 - August 3, 2018, Boston, MA). arxiv.org/abs/1810.07226, 6pp.

Kowalski, Adam F., “White-Light Continuum in Stellar Flares”, Invited review talk submitted to the proceedings of the IAU Symposium 320 "Solar and Stellar Flares and Their Effects on Planets" Aug 2015, Published online 9/6/2016, arXiv: 1511.05085, DOI: 10.1017/S1743921316000028

Kowalski, Adam F.; Hawley, Suzanne L.; Johns-Krull, Christopher M.; Schmidt, Sarah J.; Brown, Alexander; Wisniewski, John P.; Davenport, James R. A.; Farina, Cecilia; Pietro Gentile Fusillo, Nicola; Xilouris, Manolis; Mathioudakis, Mihalis; Osten, Rachel A.; Holtzman, Jon A.; Phan-Bao, Ngoc; Valenti, Jeff A.; Walkowicz, Lucianne, “New HST/COS Observations of Flares on the M dwarf GJ 1243”, Hubble’s 25th Anniversary Symposium, April 2015

Kowalski, Adam F.; Hawley, Suzanne L.; Johns-Krull, Christopher M.; Schmidt, Sarah J.; Brown, Alexander; Wisniewski, John P.; Davenport, James R. A.; Farina, Cecilia; Pietro Gentile Fusillo, Nicola; Xilouris, Manolis; Mathioudakis, Mihalis; Osten, Rachel A.; Holtzman, Jon A.; Phan-Bao, Ngoc; Valenti, Jeff A.; Walkowicz, Lucianne, “Time-Resolved Near-Ultraviolet Flare Spectra with the Hubble Space Telescope / Cosmic Origins Spectrograph”, 2015 AAS Meeting #225, Poster #449.03

Drake, S. A.; Behar, E.; Doyle, J. G.; Güdel, M.; Hamaguchi, K.; **Kowalski, A. F.**; Maccarone, T.; Osten, R. A.; Peretz, U.; Wolk, S. J. 2015 “Stellar flares observed by LOFT: implications for the physics of coronae and for the "space weather" environment of extrasolar planets.” arXiv: 1501.02771

Kevin France, Evgenya Shkolnik, Jeffrey Linsky, Aki Roberge, Thomas Ayres, Alexander Brown, James Davenport, Jean-Michel Desert, Shawn Domagal-Goldman, Brian Fleming, Juan Fontenla, Luca Fossati, Cynthia Froning, Gregg Hallinan, Suzanne Hawley, Renyu Hu, Lisa Kaltenegger, James Kasting, **Adam Kowalski**, Parke Loyd, Pablo Mauas, Yamila Miguel, Rachel Osten, Seth Redfield, Sarah Rugheimer, Christian Schneider, Antígona Segura, John Stocke, Feng Tian, Jason Tumlinson, Mariela Vieytes, Lucianne Walkowicz, Brian Wood, and Allison Youngblood 2015, “Characterizing the Habitable Zones of Exoplanetary Systems with a Large Ultraviolet/Visible/Near-IR Space Observatory”, White paper on UV observations of exoplanet host stars.

Osten, R., **Kowalski, A.**, Hawley, S., Ayres, T., France, K., Linsky, J., Saar, S. 2015, “Time for Stars: Advocating for More Realistic Limits for UV Time-domain Spectroscopy,” *Hubble Space Telescope 2020 Vision White Paper*

Fletcher, Lyndsay; **Kowalski, A.**; Cauzzi, G.; Hawley, S. L.; Hudson, H. S. 2013, “The properties of flare kernels observed by the Dunn Solar Telescope”, American Astronomical Society, SPD meeting #44, id.#100.67

Brown, Benjamin; **Kowalski, A. F.**; Mathioudakis, M.; Hooper, E. J.; Hawley, S. L.; Osten, R. A.; Wisniewski, J. P. 2012, American Astronomical Society, AAS Meeting #220, id.#204.52

Kowalski, A.F., Hawley, S.L., Holtzman, J.A., Wisniewski, J.P., Hilton, E.J. 2011, “An ‘A Star’ on an M Star during a Flare within a Flare”, Proceedings of IAU Symposium 273: "Physics of Sun and Star Spots", August 22-26, 2010, D.P. Choudhary and K.G. Strassmeier (eds.), Vol. 6., 261-264, DOI: 10.1017/S1743921311015341, arXiv: 1010.0452

Kowalski, A.F., Mathioudakis, M.; Hawley, S. L.; Hilton, E. J.; Dhillon, V. S.; Marsh, T. R.; Copperwheat, C. M., 2011, “White Light Flare Continuum Observations with ULTRACAM”, Proceedings of the 16th Workshop on Cool Stars, Stellar Systems, and the Sun ASPC 448, 1157

Kowalski, A.F., Wisniewski, J.P.; Clampin, M.; Grady, C. A.; Sitko, M. L.; Bjorkman, K. S.; Fukagawa, M.; Hines, D. C.; Katoh, E.; Whitney, B. A. 2009, “Diagnosing the Structure of the HD 163296 Protoplanetary Disk via Coronagraphic Imaging Polarimetry”, Cool Stars, Stellar Systems, and the Sun:

Proceedings of the 15th Cambridge Workshop on Cool Stars, Stellar Systems and the Sun. AIP Conference Proceedings, 1094, 393

Fletcher, L.; Turkmani, R.; Hudson, H. S.; Hawley, S. L.; **Kowalski, A.F.**; Berlicki, A.; Heinzel, P. 2010, "Solar Flares and the Chromosphere", A white paper prepared for the Space Studies Board, National Academy of Sciences (USA), for its Decadal Survey of Solar and Space Physics (Heliophysics), arXiv1011.4650F

LSST Science Collaborations; Abell, Paul A.; Allison, Julius; Anderson, Scott F.; Andrew, John R.; Angel, J. Roger P.; Armus, Lee; Arnett, David; Asztalos, S. J.; Axelrod, Tim S.; and 238 coauthors including **Kowalski, A.F.**, "LSST Science Book, Version 2.0", arXiv0912.0201L

Browning, Matthew K.; Walkowicz, Lucianne M.; West, Andrew A.; Basri, Gibor; Browning, Matthew K.; **Kowalski, Adam F.**, Hilton, Eric; Bochanski, John J. 2009, "Understanding Activity in Low Mass Stars", Astro2010: The Astronomy and Astrophysics Decadal Survey, Science White Papers

Invited Talks & Colloquia

Invited talk on "Similarities and Differences in Solar and Stellar Flares", European Week for Astronomy and Space Sciences, April 3, 2018, Special Session 12 "Flares in the lower atmosphere of the Sun and stars".

Invited speaker on "Optical/UV Emission and Variability of Exoplanet Host Stars" at the SORCE 2018 Sun-Climate Symposium (session on Stellar Variability and Connections to the Sun), March 19-23, 2018, Lake Arrowhead, CA.

Invited talk at "High resolution solar physics: past, present, future", Sunspot, NM, August 10, 2017, on "Flare Observations at High Resolution".

Colloquium Minnesota Institute for Astrophysics at the University of Minnesota on "The Spectral Signatures of Deep Atmospheric Heating in Solar and Stellar Flares" on May 5, 2017.

Invited talk on "A Superflare from DG CVn (& the characteristics of secondary flares on the Sun and stars)" at Boulder Solar Day on April 4, 2017 Boulder, CO.

Colloquium on "The Spectral Signatures of Deep Atmospheric Heating in Solar and Stellar Flares" at the High Altitude Observatory on March 15, 2017, Boulder, CO.

Talk at the AURA Observatory Council meeting October 12, 2016, on "Flare Science with the DKIST", Las Cruces, New Mexico, Boulder, CO, Oct 25, 2016.

Talk at the DKIST Working Group meeting October 12, 2016, on “Flare Science with the DKIST”, Las Cruces, New Mexico.

Talk at the Space Science Institute “The White-Light Flares of Proxima Centauri” on Oct 3, 2016, Boulder, CO.

Plenary session review talk on a “Advances in Understanding Solar and Stellar Flares” in the plenary session "Solar/Stellar Magnetic Activity and the Impact on Planetary Environments" at the 19th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (6/9/2016), Uppsala, Sweden

Colloquium "The Optical and Near-Ultraviolet Continuum Emission in Stellar Flares" at the University of Colorado Boulder Astrophysics and Planetary Sciences department and the National Solar Observatory on March 30th 2016.

“Modeling of Optical and NUV Continuum during Stellar Flares”, Invited talk at the “Superflares on Solar-type Stars and Solar Flares, and Their Impacts on Exoplanets and the Earth”, Kyoto University, March 1st, 2016.

“New Constraints from IRIS on the Origin of White-Light Flare Emission”, Invited seminar at the University of Cambridge, January 18th, 2016.

“The Optical and Near-Ultraviolet Continuum Emission in Stellar Flares”, University of Maryland Department of Astronomy Colloquium (11/4/2015)

"White-Light Continuum in M Dwarf Flares", Invited Review Talk at the International Astronomical Union Symposium 320, "Solar and Stellar Flares and their Effects on Planets", Honolulu, Hawaii (8/3/2015)

“New Spectral Constraints from IRIS on Models of White-Light Flare Emission” NASA Heliophysics Director’s Seminar at the NASA Goddard Space Flight Center on June 19, 2015.

“Recent Observations and Modeling of Flares on dMe Stars” (06/26/2014)
Invited talk at “Solar and Stellar Flares”, Prague, Czech Republic

"Recent Observations and Modeling of Optical Flares on Red Dwarf Stars" (10/7/2014), Invited Seminar at University of Delaware Astronomy Department

“Flares on Red Dwarf Stars” (10/3/2013)
Colloquium at the University of Oklahoma Department of Physics and Astronomy

“State-of-the-Art Observations and Modeling of Stellar Flares” (8/20/2012)

Invited Keynote Talk at the IAU General Assembly Joint Discussion 3, "3D Views of the Cycling Sun in Stellar Context", Beijing, China

Contributed Talks

NSO Seminar, Dec 8, 2018, on "What's new in the physics and observations of flares?"

I attended and gave a talk on "Very Broad Hydrogen Lines in Response to High-Flux Electron Beam Heating in Solar Flares" at the RHESSI 16 / MinXSS 1 Workshop in Boulder, CO on June 22, 2017.

Brown bag talk at the National Solar Observatory on "The hydrogen line broadening in solar and stellar flares", April 11, 2017.

"NUV and Optical Continuum Emission in Stellar Flares" to the Solar Physics group at Stockholm University on June 13th, 2016 in Stockholm, Sweden.

Talk at the NASA/GSFC Spectroscopy club, "Modeling the near-ultraviolet line and continuum emission in solar flare spectra from IRIS", April 12, 2016.

"The Spectral Energy Distribution of White-Light Emission in Solar and Stellar (dMe) Flares", Hinode 9 Science Meeting, Queen's University Belfast, UK (9/15/2015)

"Optical and Near-Ultraviolet (White-light) Flares on Red Dwarf Stars", Seminar at the Keck Headquarters, Waimea, HI (9/3/2014)

"Optical Flares on Red Dwarf Stars and the Sun", Seminar at the Carnegie Institution, Department of Terrestrial Magnetism, Washington, DC (11/7/2014)

"A Deep Rapid Archival Flare Transients Search (DRAFTS) of the Galactic Bulge", Invited talk at the Cool Stars 18 splinter session on the solar-stellar connection, Flagstaff, AZ (6/2014)

"Hot-Wiring flare stars: optical flare rates and properties from time-domain surveys", invited talk at Hot-Wiring the Transient Universe III", Santa Fe, New Mexico (11/13/2013)

"Flares on low-mass stars", Invited talk at IAU General Assembly Special Session 13, "High-precision tests of stellar physics from high-precision photometry", Beijing, China (8/29/2012)

"Non-thermal heating in M dwarf flares: new radiative hydrodynamic models and constraints from observations", Contributed Talk at Cool Stars 17 Splinter Session "Non-thermal processes in coronae and beyond", Barcelona, Spain (6/26/2012)

“Time-Resolved Properties of White Light Emission During Stellar Flares”, University of Wisconsin-Madison (11/22/2011)

“Time-Resolved Properties of White Light Emission During Stellar Flares”, National Solar Observatory Colloquium, Sac Peak (8/11/2011)

"UV Spectroscopy of Stellar and Solar Flares", AAS Meeting #218, Meeting-in-a-Meeting "What's New Under the Suns", Boston MA (5/24/2011)

"Time-Resolved Properties of White Light Emission During Stellar Flares", ING/NOT La Palma Colloquium (2/17/2011)

“Overview of Stellar Flare Observations”, 16th Workshop on Cool Stars, Stellar Systems, and the Sun, ‘Solar and Stellar Flares’ Splinter Session (8/29/2010)

“Towards Understanding White Light Emission in Stellar Flares”, IAUS 273, Physics of Sun and Star Spots, Ventura, California 22-26 (8/2010)

“Towards Understanding White Light Emission in Stellar Flares”, ‘The Origin, Evolution, and Diagnosis of Solar Flare Magnetic Fields and Plasmas: Honoring the Contributions of Dick Canfield’, HAO/NCAR in Boulder, CO (8/9/2010)

“A White Light Megaflare on the dM4.5e Star YZ CMi”, CTIO Colloquium, Chile (5/18/201)

“M Dwarfs in Sloan Digital Sky Survey Stripe 82: Photometric Light Curves and Flare Rate Analysis”, Gemini North Observatory Colloquium, Hawaii (7/24/09)

Space-Based Telescope Observing/Planning Experience

Telescope	Instrument	Number of nights or hours
XMM-Newton	All	466 ks (130 hours) Large Program (executed in Oct 2018)
Hubble Space Telescope	COS	8 orbits (Aug 31/Sep 1 2014)
Herschel	PACS	30 hours
Interface Region Imaging Spectrograph		Flare watch observations (Sep 2015, Dec 2015)

Ground-Based Telescope Observing Experience (as active observer)

Telescope	Instrument	Number of nights or hours
Keck I	LRIS	0.5 nights
ARC 3.5m at APO	DIS	75 half nights***
ARC 3.5m at APO	ARCES	7 half nights
ARC 3.5m at APO	ARCTIC	6 half nights

ARCSAT 0.5m at APO	Flarecam	30+ half nights***
Dunn Solar Telescope	ROSA + IBIS	26 days
Dunn Solar Telescope	HSG + IBIS	9 days
WHT at La Palma	ISIS	2 nights
WHT at La Palma	ULTRACAM	2 nights
NTT at La Silla	ULTRACAM	3 nights
Subaru	IR Coronagraph	3 nights
UKIRT	IR Coronagraph	4 nights
2.1m and 0.9m at KPNO	IR and optical phot	8 nights
1.8m at DAO	Spectrograph	11 nights

***16 of these half-nights involved operating the 3.5m and 0.5m simultaneously

Leadership Positions

Science Organizing Committee member for Cool Stars 20 "Cambridge Workshops of Cool Stars, Stellar Systems and the Sun", July 29-Aug 3, 2018, Boston, MA.

Lead organizer on the Science Organizing Committee for the splinter session "Solar Physics with the DKIST"

at Cool Stars 20 "Cambridge Workshops of Cool Stars, Stellar Systems and the Sun", July 29-Aug 3, 2018, Boston, MA.

Lead organizer on the Science Organizing Committee for the splinter session "Flares in Time-Domain Surveys" convened at the 19th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun (6/7/2016), Uppsala, Sweden

Science Organizing Committee for Committee on Space Research (COSPAR) 2016 session "Multiwavelength Observations and Simulations of Solar and Stellar Flares"

Co-leader with Alexander Warmuth of the Working Group "Coronal Influences to the Lower Atmosphere/Seismic Waves" at "Solar in Sonoma: Tracing the Connections in Solar Eruptive Events", Nov 27, 2012 – Dec 2, 2012, Petaluma, CA

Co-organizer of "Seismology of Stellar Coronal Flares" Lorentz Center Workshop, May 21 – 24, 2013, Leiden, The Netherlands

Participation in Collaborations

Member of Paola Testa's Solar Chromospheric Heating Workshop at the International Space Science Institute (ISSI) in Bern, Switzerland; January 2016, February 2018

Member of Louise Harra's 'Energy Transformation in Solar and Stellar Flares' Workshop at the International Space Science Institute (ISSI) in Bern, Switzerland; February 2014, May 2015, January 2016

Young Scientist participant in S. Wedemeyer's 'Magnetic Activity of Dwarf Stars and Habitability of Extra-solar Planets' Workshop at the International Space Science Institute (ISSI) in Bern, Switzerland; January 2013

Young Scientist participant in L. Fletcher's 'Solar Chromospheric Flares' Workshop at the International Space Science Institute (ISSI) in Bern, Switzerland; November 2009, June 2010, March 2011, January 2013

Member of LSST Transients Working Group

Teaching Experience

Co-instructor for the Astrophysics Graduate Seminar, ASTR 6000 Fall 2018.

Lecturer at the HAO/NCAR Boulder Space Weather Summer School, 2018. I taught two 1-hour classes on "Solar Flares" and "Solar Energetic Particles" on July 18, 2018.

Co-instructor for the Astrophysics Graduate Seminar, ASTR 6000 Fall 2017, on "State of the art stellar atmospheric modeling". 19 students took the seminar, which was co-taught by Prof. Tom Ayres. The syllabus is available at

https://www.dropbox.com/s/ihgzug4xd96d2cz/ASTR6000_Syllabus_Final.pdf?dl=0

Instructor for ASTR 1200 "Stars and Galaxies" at CU Boulder, Fall 2017.

Taught 4 lectures for ASTR 7500 (Collaborative Graduate Education Program) "Solar Flares & CMEs: Physics and Observations" in Spring 2017 at CU Boulder.

Instructor for ASTR 1200 "Stars and Galaxies" at CU Boulder, Spring 2017.

Developed and presented a tutorial on "RADYN Flare Simulations" with Joel Allred, IRIS-4 Workshop, Boulder, CO, May 28th, 2015:

https://www.youtube.com/watch?v=uvmsQ3VMx_0&index=2&list=PLUJIX4Fd9acgUw8gGiNYtMGgvtDeshuta

Teaching Assistant for Astronomy 101 and Astronomy 150: Six quarters at the University of Washington (2006 - 2007, 2009, 2010)

Developed curricular material on accessing and using Sloan Digital Sky Survey (SDSS) spectra for the graduate Astronomy class, ASTR 581. I taught this tutorial (a 3-hour session) in 2010 and 2011.

Press Releases

Co-author on the study (MacGregor et al. 2018, ApJL) that was featured in the press release here:

<https://public.nrao.edu/news/2018-alma-flare-proxima/>

Press release on 'Optical Flares on Dwarf Stars: Implications for Exoplanet Habitability' at the 2011 Winter American Astronomical Society meeting in Seattle, WA, January 10. Our press release resulted in articles in *National Geographic*, the *BBC*, *Astronomy*, *NASA's* website, and *Hubblesite*

Quoted in a NASA Press release on superflare on DG CVn, Sept 30th 2014:

<http://www.nasa.gov/content/goddard/nasas-swift-mission-observes-mega-flares-from-a-mini-star/>

I presented this press release as a Science Nugget presentation at the NASA/GSFC Code 600 Town Hall Meeting; October 2, 2014

Outreach

Author of a RHESSI Nugget summarizing the results from Kowalski & Allred 2018, ApJ.

http://sprg.ssl.berkeley.edu/~tohban/wiki/index.php/Parameterized_Flare_Models_with_Chromospheric_Compressions (published January 17, 2018).

Author of NSO blog post on the research findings in Kowalski & Allred 2018, ApJ:

<https://www.nso.edu/blog/uv-explosions-flares/> (published January 31, 2018).

Author of a large fraction of the Space Weather section on NSO's new website:

<https://www.nso.edu/research/science-research/space-weather/>

Public lecture on "The Stellar Flares of Proxima Centauri" to the Longmont Astronomical Society on February 16, 2017

Presentation on "Violent Suns" to Basis DC (charter school) AP Calculus Class May 27th, 2015; developed a worksheet to show calculus students how to use integrals to calculate energies from a flare light curve from the *Hubble Space Telescope*

Public talk on stellar flares at the Tacoma Astronomical Society meeting, Tacoma, Washington, July 2010

Interview for Solar Eclipse Webcast, "Introducing your star" at the National Solar Observatory (two recordings, November 10, 2016 and November 14, 2016: <http://www.nso.edu/eclipse2017/webcasts>)

Talk on "Stellar Flares" to the CU Undergraduate Astronomy Club at Fiske Planetarium on December 2, 2016.

Developed project overview descriptions (for undergrads, grads, and post-docs who are interested in doing research with me) for my professional website: afkowalski.bitbucket.io

Service

Social Committee, APS Department, Fall 2018

Fiske Planetarium Oversight Committee, APS Department, Fall 2018

Instructor Hiring Committee, APS Department, Fall 2018

Colloquium Committee, APS Department, Fall 2017 and Spring 2018.

Graduate Admissions Committee, APS Department, Spring 2017.

Referee for 12 articles for *ApJ*, 1 article for *PASJ*, 1 article for *AN*, 1 article for *Astrophysics and Space Science*, 1 article for Nature Communications

Served as primary reviewer on two National Science Foundation proposal review panels

Served as primary reviewer on three NASA TAC panels (Chandra, Swift, Kepler)

Served as external reviewer for two NASA panels