

Bibliography from ADS file: zirin.bib  
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- Dougherty, B. L., Zirin, H., & Hsu, K., "Statistical Correlations between Solar Microwave Bursts and Coronal Mass Ejections", 2002ApJ...577..457D [ADS](#)
- Zirin, H. & Cameron, R., "Quantitative measure of quiet photospheric magnetic fields", 2002AA...200.3903Z [ADS](#)
- Dougherty, B. L. & Zirin, H., "Statistical Correlations Between Solar Microwave Bursts and Coronal Mass Ejections", 2002AA...200.3711D [ADS](#)
- Zirin, H. & Cameron, R., "The true structure of weak solar magnetic fields", 2002ocnd.confE..30Z [ADS](#)
- Zirin, H. & Cameron, R., "The Spectrovideomagnetograph Reveals the True Strength of Photospheric Magnetic Fields", 2001AGUSM..SH32C04Z [ADS](#)
- Zirin, H. & Cameron, R., "The Field Strength of the Quiet Sun Magnetic Elements", 2001AA...198.7105Z [ADS](#)
- Cameron, R. & Zirin, H., "Spectrovideomagnetograph results and the Stokes V asymmetry", 2001AA...198.7104C [ADS](#)
- Georgakilas, A. A., Christopoulou, E. B., & Zirin, H., "Oscillations and running waves observed in sunspots: Analysis of an extended sample of sunspots", 2000AA...197.5109G [ADS](#)
- Zirin, H. & Cameron, R., "The Spectrovideomagnetograph Reveals the True Strength of Quiet Sun Magnetic Fields", 2000AA...197.5107Z [ADS](#)
- Sammis, I., Tang, F., & Zirin, H., "The Dependence of Large Flare Occurrence on the Magnetic Structure of Sunspots", 2000ApJ...540..583S [ADS](#)
- Dougherty, B. L., Freely, W. B., Zirin, H., Gary, D. E., & Hurford, G. J., "Solar Radio Burst Locator", 2000ASPC..206..367D [ADS](#)
- Zirin, H., Sammis, I., & Tang, F., "The Magnetic Circumstances of Large Flares", 2000ASPC..206..37Z [ADS](#)
- Zirin, H. & Cameron, R., "Chromospheric Sources of Coronal Rays", 1999AA...194.7808Z [ADS](#)
- Dougherty, B. L., Hurford, G., Sammis, I., & Zirin, H., "The Solar Radio Burst Locator (SRBL) Program", 1999AA...194.7705D [ADS](#)
- Sammis, I. & Zirin, H., "The delta SPOt and active region cutoff energies", 1999AA...194.5401S [ADS](#)
- Zirin, H., "The Apparent Reversal of Fields at the Solar Limb", 1999SoPh..184..249Z [ADS](#)
- Denker, C., Johannesson, A., Marquette, W., et al., "Synoptic H $\alpha$  Full-Disk Observations of the Sun from Big Bear Solar Observatory - I. Instrumentation, Image Processing, Data Products, and First Results", 1999SoPh..184..87D [ADS](#)
- Zirin, H. & Cameron, R.: 1999, Variability of Solar UV Irradiance Related to Bright Magnetic Features Observed in CaII K-Line: Relationship between Lyman alpha and K-line Report for UARS funding agency, Technical Report, California Inst. of Tech. Pasadena, CA United States Solar Astronomy 1999STIN...9910690Z [ADS](#)
- Nindos, A. & Zirin, H., "Properties and Motions of Ellerman Bombs", 1998SoPh..182..381N [ADS](#)
- Zhang, J., Lin, G., Wang, J., Wang, H., & Zirin, H., "The evolution of intranetwork magnetic elements", 1998A&A...338..322Z [ADS](#)
- Zhang, J., Wang, J., Wang, H., & Zirin, H., "The motion patterns of intranetwork magnetic elements", 1998A&A...335..341Z [ADS](#)
- Zirin, H.: 1998, *The Astrophysics of the Sun* 1998assu.book.....Z [ADS](#)
- Zirin, H., Wilson, P. R., & Li, Y., "Curious Magnetic Changes in a Quiet Region", 1998SoPh..179..269Z [ADS](#)
- Nindos, A. & Zirin, H., "The Relation of CA II K Features to Magnetic Field", 1998SoPh..179..253N [ADS](#)
- Zirin, H. & Cameron, R., "New Studies of Polar Spicules", 1998AA...192.1506Z [ADS](#)
- Zhang, J., Lin, G., Wang, J., Wang, H., & Zirin, H., "Lifetime of Intranetwork Magnetic Elements", 1998SoPh..178..245Z [ADS](#)
- Wang, H., Spirock, T., Goode, P. R., et al., "Contrast of Faculae at 1.6 Microns", 1998ApJ...495..957W [ADS](#)
- Wang, H., Komenda, A. E., Tang, F., & Zirin, H., "Filament Disappearances During the Period of September 1991 through September 1994", 1998SoPh..178..109W [ADS](#)
- Wang, H., Johannesson, A., Stage, M., Lee, C., & Zirin, H., "Study of H $\alpha$  Jets on the Quiet Sun", 1998SoPh..178..55W [ADS](#)
- Johannesson, A., Marquette, W. H., & Zirin, H., "A 10-Year Set of CA I K-Line Filtergrams", 1998ser...conf..265J [ADS](#)
- Johannesson, A., Marquette, W. H., & Zirin, H., "A 10-Year Set of CA II K-Line Filtergrams", 1998SoPh..177..265J [ADS](#)
- Zirin, H., "Dynamics of solar spicules", 1998ESASP.421...39Z [ADS](#)
- Zhang, L. D., Zirin, H., & Marquette, W. H., "Comparison of Polar and Equatorial Magnetic Fields Near Sunspot Minimum", 1997SoPh..175..59Z [ADS](#)
- Nindos, A. & Zirin, H., "The relation of CaII K line features to magnetic field intensity", 1997BAAS...29.1119N [ADS](#)
- Patrón, J., González Hernández, I., Chou, D.-Y., et al., "Comparison of Two Fitting Methods for Ring Diagram Analysis of Very High l Solar Oscillations", 1997ApJ...485..869P [ADS](#)
- Kocharov, L. G., Torsti, J., Tang, F., et al., "Impact of Magnetic Environment on the Generation of High-Energy Neutrons at the Sun", 1997SoPh..172..271K [ADS](#)
- Lee, C.-Y., Johannesson, A., Wang, H., Stage, M., & Zirin, H., "Study of Chromospheric Jets", 1997SPD....28.1305L [ADS](#)
- Zirin, H., "Is There a Background Polar Field?", 1997SPD....28.0250Z [ADS](#)
- Denker, C., Zirin, H., & Wang, H., "High Spatial Resolution Observations of a Sunspot with an 'Orphan Penumbra'", 1997SPD....28.0245D [ADS](#)
- Komenda, A. E., Wang, H., Tang, F., & Zirin, H., "Filament Eruptions During the Period of Sept. 1991 through Sept. 1994", 1997SPD....28.0103K [ADS](#)
- Silva, A. V. R., Wang, H., Gary, D. E., Nitta, N., & Zirin, H., "Imaging the Chromospheric Evaporation of the 1994 June 30 Solar Flare", 1997ApJ...481..978S [ADS](#)
- Lee, J., Chae, J. C., Yun, H. S., & Zirin, H., "Power Spectra of Solar Network and Non-Network Fields", 1997SoPh..171..269L [ADS](#)
- Lee, J., Chae, J. C., Yun, H. S., & Zirin, H., "The Effect of Seeing on Solar Magnetic Flux Measurements", 1997SoPh..171..35L [ADS](#)
- Brisken, W. F. & Zirin, H., "New Data and Models of Running Penumbral Waves in Sunspots", 1997ApJ...478..814B [ADS](#)
- Wang, J., Shi, Z., Yang, X., & Zirin, H., "Appearance of Chromospheric Magnetic Fields above Sunspots", 1997ASPC..118..116W [ADS](#)
- Zirin, H., "The Mystery of the Chromosphere", 1996SoPh..169..313Z [ADS](#)
- Pevtsov, A. A., Canfield, R. C., & Zirin, H., "Reconnection and Helicity in a Solar Flare", 1996ApJ...473..533P [ADS](#)
- Johannesson, A. & Zirin, H., "The Pole-Equator Variation of Solar Chromospheric Height", 1996ApJ...471..510J [ADS](#)
- Kocharov, L., Kovaltsov, G., Torsti, J., et al., "The 1990 May 24 solar flare and cosmic ray event", 1996AIPC..374..246K [ADS](#)
- Wang, H., Tang, F., Zirin, H., & Wang, J., "The Velocities of Intranetwork and Network Magnetic Fields", 1996SoPh..165..223W [ADS](#)
- Stage, M., Zirin, H., & Wang, H., "Three Classes of Chromospheric Ejecta", 1996AA...188.3618S [ADS](#)
- Silva, A. V. R., Wang, H., Gary, D. E., Zirin, H., & Nitta, N., "Imaging the Chromospheric Evaporation of the 1994 June 30 Solar Flare", 1996AA...188.3310S [ADS](#)
- Wang, H., Gary, D. E., Zirin, H., et al., "OVRO, BBSO, BATSE, and YOHKOH Observations of a Twin Solar Flare", 1996ApJ...456..403W [ADS](#)
- Wang, H., Gary, D. E., Zirin, H., et al., "Coordinated OVRO, BATSE, Yohkoh, and BBSO Observations of the 1992 June 25 M1.4 Flare", 1995ApJ...453..505W [ADS](#)
- Kocharov, L. G., Lee, J. W., Wang, H., et al., "Erratum: The 1991 March 22 Flare: Possible Anisotropy of High-Energy Neutral Emission", 1995SoPh..161..407K [ADS](#)
- Johannesson, A., Marquette, W., & Zirin, H., "Reproduction of the Lyman textbackslashalpha Irradiance Variability from Analysis of Full-Disk Images in the CaII K-Line", 1995SoPh..161..201J [ADS](#)
- Wang, J., Wang, H., Tang, F., Lee, J. W., & Zirin, H., "Flux distribution of solar intranetwork magnetic fields", 1995SoPh..160..277W [ADS](#)
- Chou, D.-Y., Sun, M.-T., Huang, T.-Y., et al., "Taiwan Oscillation Network", 1995SoPh..160..237C [ADS](#)
- Suematsu, Y., Wang, H., & Zirin, H., "High-Resolution Observation of Disk Spicules. I. Evolution and Kinematics of Spicules in the Enhanced Network", 1995ApJ...450..411S [ADS](#)
- Zirin, H., "AG Ananth, K Kudela, D Venkatesan On the Comparison of Filter Magnetographs and the Advanced Stokes Polarimeter", 1995SoPh..159..203Z [ADS](#)
- Wang, H., Gary, D. E., Zirin, H., et al., "The Microwave and H alpha Sources of the 1992 January 13 Flare", 1995ApJ...444L.115W [ADS](#)
- Chen, J. M., Wang, H. M., Zirin, H., & Ai, G. X., "Erratum - Observations of Vector Magnetic Fields on Flaring Active Regions", 1995SoPh..158..205C [ADS](#)
- Kocharov, L. G., Lee, J. W., Wang, H., et al., "The 1991 March 22 Flare: Possible Anisotropy of High-Energy Neutral Emission", 1995SoPh..158..95K [ADS](#)
- Wang, H., Gary, D. E., Zirin, H., et al., "The Microwave and H $\alpha$  Sources of the 1992 January 13 Flare", 1995SPD....26..805W [ADS](#)
- Johannesson, A., Marquette, W., & Zirin, H., "A ground-based CaII K-line index as a proxy for the UARS Lyman  $\alpha$  irradiance", 1995SPD....26..511J [ADS](#)
- Brisken, W. F. & Zirin, H., "Properties of Running Penumbral Waves", 1995SPD....26..501B [ADS](#)

- Kocharov, L. G., Kovaltsov, G. A., Torsti, J., Usoskin, I. G., & Zirin, H., "Correlative Investigations of the 1990 May 24 Solar Flare", 1995ICRC...4..159K [ADS](#)
- Lin, H., Varsik, J., & Zirin, H., "High Resolution Observations of the Polar Magnetic Fields of the Sun", 1994SoPh..155..243L [ADS](#)
- Sakurai, T., Suematsu, Y., Ichimoto, K., et al., "Peculiar magnetic field evolution of active region NOAA 7562 in August 1993 - results from campaign observation with Yohkoh", 1994ESASP.373..337S [ADS](#)
- Kocharov, L. G., Lee, J. W., Zirin, H., et al., "Neutron and electromagnetic emissions during the 1990 May 24 solar flare", 1994SoPh..155..149K [ADS](#)
- Chen, J., Wang, H., Zirin, H., & Ai, G., "Observations of Vector Magnetic Fields in Flaring Active Regions", 1994SoPh..154..261C [ADS](#)
- Golub, L., Zirin, H., & Wang, H., "The Roots of Coronal Structure in the Sun's Surface", 1994SoPh..153..179G [ADS](#)
- Moses, D., Cook, J. W., Bartoe, J. D. F., et al., "Solar Fine-Scale Structures in the Corona, Transition Region, and Lower Atmosphere", 1994ApJ...430..913M [ADS](#)
- Lee, J. W., Gary, D. E., & Zirin, H., "Flat Microwave Spectra Seen at X-Class Flares", 1994SoPh..152..409L [ADS](#)
- Hill, F., Fischer, G., Forgach, S., et al., "The Global Oscillation Network Group Site Survey - Part Two", 1994SoPh..152..351H [ADS](#)
- Kocharov, L. G., Kovaltsov, G. A., Kocharov, G. E., et al., "Electromagnetic and corpuscular emission from the solar flare of 1991 June 15: Continuous acceleration of relativistic particles", 1994SoPh..150..267K [ADS](#)
- Wang, H., Ewell, M. W., J., Zirin, H., & Ai, G., "Vector Magnetic Field Changes Associated with X-Class Flares", 1994ApJ...424..436W [ADS](#)
- Liu, Y., Zhang, H., Ai, G., Wang, H., & Zirin, H., "The evolution of magnetic network elements in the quiet Sun", 1994A&A...283..215L [ADS](#)
- Ewell, M. W., J., Zirin, H., Jensen, J. B., & Bastian, T. S., "850 MU M Observations of the 11 July 1991 Total Solar Eclipse", 1994IAUS..154..161E [ADS](#)
- Bastian, T. S., Ewell, M. W., J., & Zirin, H., "A Study of Solar Prominences near lambda = 1 Millimeter", 1993ApJ...418..510B [ADS](#)
- Harmon, R., Rosner, R., Zirin, H., Spiller, E., & Golub, L., "The Coronal Structure above Sunspots and Pores", 1993ApJ...417L..83H [ADS](#)
- Zirin, H., "Soviet revolutions", 1993Natur.365..796Z [ADS](#)
- Bastian, T. S., Ewell, M. W., J., & Zirin, H., "The Center-to-Limb Brightness Variation of the Sun at lambda = 850 Microns", 1993ApJ...415..364B [ADS](#)
- Wu, S. T., Weng, F. S., Wang, H. M., Zirin, H., & Ai, G. X., "Magnetic structures and energy of 1989 March flares", 1993AdSpR..13i.127W [ADS](#)
- Zirin, H., & Wang, H., "Narrow lanes of transverse magnetic field in sunspots", 1993Natur.363..426Z [ADS](#)
- Chen, J., Wang, H., Zirin, H., & Ai, G., "Observations of Vector Magnetic Fields in Flaring Active Regions", 1993BAAS...25R1208C [ADS](#)
- Ewell, M. W., J., Wang, H., Zirin, H., & Ai, G., "Vector Magnetic Field Changes Associated with X-Class Flares", 1993BAAS...25.1198E [ADS](#)
- Rakuljic, G., & Zirin, H., "A Holographic Narrow-Band Filter for Solar Observing", 1993BAAS...25.1184R [ADS](#)
- Zirin, H., & Wang, H., "Properties of Spicules", 1993BAAS...25.1181Z [ADS](#)
- Cook, J. W., Moses, D., Brückner, G. E., et al., "Transition Region Explosive Events in an X-Ray Dark Lane Region of the Quiet Sun", 1993BAAS...25.1181C [ADS](#)
- Zirin, H., & Wang, H., "Strong transverse fields in delta-spots", 1993SoPh..144..37Z [ADS](#)
- Ewell, M. W., J., Zirin, H., Jensen, J. B., & Bastian, T. S., "Submillimeter Observations of the 1991 July 11 Total Solar Eclipse", 1993ApJ...403..426E [ADS](#)
- Lee, J. W., Gary, D. E., Hurford, G. J., & Zirin, H., "Microwave Emission From a Sunspot III. Implications for the Force Balance in a Static Sunspot", 1993ASPC..46..287L [ADS](#)
- Zirin, H., "The Interaction of Weak and Strong Magnetic Fields on the Sun (Invited)", 1993ASPC..46..215Z [ADS](#)
- , "The magnetic and velocity fields of solar active regions", 1993ASPC..46....Z [ADS](#)
- Wang, H., Varsik, J., Zirin, H., et al., "Joint vector magnetograph observations at BBSO, Huairou Station and Mees Solar Observatory", 1992SoPh..142..11W [ADS](#)
- Zirin, H., "Breaking out in spots", 1992Natur.359..271Z [ADS](#)
- Zhang, H., Ai, G., Wang, H., Zirin, H., & Patterson, A., "Evolution of Magnetic Fields and Mass Flow in a Decaying Active Region", 1992SoPh..140..307Z [ADS](#)
- Wang, H., & Zirin, H., "Flows around Sunspots and Pores", 1992SoPh..140..41W [ADS](#)
- Zirin, H., "Strong (4000g) Transverse Fields in Delta Spots", 1992AA...180.5105Z [ADS](#)
- Zirin, H., "Strong (7000g) Transverse Fields in Delta Spots", 1992AA...180.5104Z [ADS](#)
- Suematsu, Y., Wang, H., & Zirin, H., "Kinematics and Lifetimes of Solar Spicules", 1992AA...180.0702S [ADS](#)
- Zirin, H., "The secrets of the solar atmosphere.", in N. S. Kardashev (Ed.), Astrophysics on the Threshold of the 21st Century, 53–62 1992atc..book...53Z [ADS](#)
- Harrison, S. W., Zirin, H., & Bahcall, J. N., "An Issue of Neglect for Astronomy?", 1992PhT...45b.128H [ADS](#)
- Zirin, H., & Wang, H., "Detection of 'Invisible' Sunspots", 1992ApJ...385L..27Z [ADS](#)
- Zirin, H., "Solar Activity", 1992ASIC..373..449Z [ADS](#)
- Zirin, H., "Solar Optical Instrumentation", 1992ASIC..373..379Z [ADS](#)
- Zirin, H., "The Photospeher", 1992ASIC..373..175Z [ADS](#)
- Wang, H., Tang, F., Zirin, H., & Ai, G., "Motions, Fields, and Flares in the 1989 March Active Region", 1991ApJ...380..282W [ADS](#)
- Zirin, H., "Obituary: Katsuo Tanaka, 1943–1990", 1991BAAS...23.1494Z [ADS](#)
- Zirin, H., Baumert, B. M., & Hurford, G. J., "The Microwave Brightness Temperature Spectrum of the Quiet Sun", 1991ApJ...370..779Z [ADS](#)
- Wang, H., & Zirin, H., "Evolution of Vector Magnetic Field and the August 27, 1990 X3 Flare", 1991BAAS...23Q1030W [ADS](#)
- Zirin, H., "Mapping of Three-Dimensional Sunspot Fields by Inversion Line and Symmetry", 1991BAAS...23.1053Z [ADS](#)
- Neupert, W. M., & Zirin, H., "Distribution and Dynamics of a High Temperature Coronal Plasma Associated with Chromospheric Activity", 1991BAAS...23..938N [ADS](#)
- Cacciani, A., Paverani, E., Smith, E., & Zirin, H., "Progress toward an advanced imaging vector magnetograph", 1991sopo.work..133C [ADS](#)
- Zirin, H., MacKinnon, A., & McKenna-Lawlor, S. M. P., "Solar flares.", in Solar Interior and Atmosphere, 964–995 1991sia..book..964Z [ADS](#)
- Shklovskii, I. S., Zirin, M. F., & Zirin, H.: 1991, *Five billion vodka bottles to the moon : tales of a Soviet scientist* 1991fbvb.book.....S [ADS](#)
- Zirin, H., & Marquette, W., "BEARALERTS: A successful flare prediction system", 1991SoPh..131..149Z [ADS](#)
- Wang, H., Zirin, H., & Ai, G., "Magnetic Flux Transport of Decaying Active Regions and Enhanced Magnetic Network", 1991SoPh..131..53W [ADS](#)
- Zirin, H., "The Sources of Solar Flares", in Y. Uchida, R. C. Canfield, T. Watanabe, and E. Hiei (Eds.), Flare Physics in Solar Activity Maximum 22, Vol. 387, 9 1991LNP...387....9Z [ADS](#)
- Zirin, H., & Sakurai, T., "In Memoriam - Katsuo Tanaka", in Y. Uchida, R. C. Canfield, T. Watanabe, and E. Hiei (Eds.), Flare Physics in Solar Activity Maximum 22, Vol. 387, 5 1991LNP...387....5Z [ADS](#)
- Zhang, H., Ai, G., Wang, H., Zirin, H., & Patterson, A., "The Longer Term Evolution of Magnetic Field and Mass Flow in a Decaying Active Region", in I. Tuominen, D. Moss, and G. Rüdiger (Eds.), IAU Colloq. 130: The Sun and Cool Stars. Activity, Magnetism, Dynamos, Vol. 380, 271 1991LNP...380..271Z [ADS](#)
- Zirin, H., & Wang, H., "High-resolution sunspot observations", 1991AdSpR..11e.225Z [ADS](#)
- Zirin, H., & Tang, F., "Optical Properties of Impulsive Flares", 1990ApJS...73..111Z [ADS](#)
- Gary, D. E., Zirin, H., & Wang, H., "Microwave Structure of the Quiet Sun at 8.5 GHz", 1990ApJ...355..321G [ADS](#)
- Zirin, H., "The Photometric Filtergraph Experiment (PFI) for OSL", 1990BAAS...22R.844Z [ADS](#)
- Hurford, G. J., Zirin, H., & Baumert, B. M., "The Microwave Brightness Temperature Spectrum of the Quiet Sun", 1990BAAS...22..851H [ADS](#)
- Wang, H., & Zirin, H., "Recent High Resolution Observation at BBSO", 1990BAAS...22..839W [ADS](#)
- Zirin, H., "The BBSO Program for Max'91", 1990BAAS...22..816Z [ADS](#)
- Cacciani, A., Varsik, J., & Zirin, H., "Observations of Vector Magnetic Fields with a Magneto-Optic Filter", 1990SoPh..125..173C [ADS](#)
- Zirin, H., & Wang, H., "Flows, flares, and formation of umbrae and light bridges in BBSO region No. 1167", 1990SoPh..125..45Z [ADS](#)
- Zirin, H., "Solar flares", 1990GMS.....Q..33Z [ADS](#)
- Zirin, H., & Wang, H., "Video image selection studies of granules, pores, and penumbral flows near a large sunspot", 1989SoPh..119..245Z [ADS](#)
- Moses, J. D., Cook, J. W., Bartoe, J. D. F. et al.: 1989, Correspondence between solar fine-scale structures in the corona, transition region, and lower atmosphere from collaborative observations, In American Science and Engineering, Inc., Solar X-ray Astronomy Sounding Rocket Program 26 p (SEE N90-10796 01-88) 1989sxsr.reptR....M [ADS](#)
- Wang, H., & Zirin, H., "Studies of granules, pores, and penumbral flows near a large sunspot", 1989hsrs.conf..491W [ADS](#)
- Wang, H., Zirin, H., Patterson, A., Al, G., & Zhang, H., "Seventy-Five Hours of Coordinated Videomagnetograph Observations", 1989ApJ...343..489W [ADS](#)

- Zirin, H. & Low, B. C., "Astrophysics of the Sun", 1989PhT....42g..74Z [ADS](#)
- Zirin, H. & Pasachoff, J. M., "Astrophysics of the Sun", 1989AmJPh..57..669Z [ADS](#)
- Zirin, H. & Popp, B., "Observations of the 12 Micron MG i Lines in Various Solar Features", 1989ApJ...340..571Z [ADS](#)
- Wang, H. & Zirin, H., "Study of Supergranules", 1989SoPh..120....1W [ADS](#)
- Zirin, H., Wang, H., & Ai, G. X., "Magnetograph Networking with China", 1989BAAS...21..863Z [ADS](#)
- Marquette, W. & Zirin, H., "BEARALERTS: A New Program of Flare Prediction", 1989BAAS...21..836M [ADS](#)
- Zirin, H., "The Photometric Filtergraph for OSL", 1989BAAS...21..832Z [ADS](#)
- Canfield, R. C., Bely-Dubau, E., Brown, J. C., et al., "Impulsive phase transport.", 1989epos.conf..225C [ADS](#)
- Zirin, H.: 1989, Study of weak solar magnetic fields, Final Report, 1 Dec. 1987 - 30 Nov. 1988 California Inst. of Tech., Pasadena. 1989cait.reptQ....Z [ADS](#)
- Simon, G. W., Title, A. M., Topka, K. P., et al., "Magnetohydrodynamics on the solar surface.", 1989GMS....54..53S [ADS](#)
- Simon, G. W., November, L. J., Ferguson, S. H., et al., "Details of Large Scale Solar Motions Revealed by Granulation Test Particles", 1989ASIC..263..371S [ADS](#)
- Zirin, H. & Wiedemann, E., "Book-Review - Astrophysics of the Sun", 1989AN....310..346Z [ADS](#)
- Zirin, H., "Book-Review - Astrophysics of the Sun", 1988Sci...242.1586Z [ADS](#)
- Wang, H., Patterson, A., Zirin, H., Ai, G., & Zhang, H., "Coordinated video-magnetograph observations by the Big Bear and Huairou Observatories", 1988fnsm.work..279W [ADS](#)
- Zirin, H., "Heading Toward Solar Maximum", 1988S&T....76..355Z [ADS](#)
- Zirin, H., "Book-Review - Astrophysics of the Sun", 1988JBAA..98..316Z [ADS](#)
- Chou, D.-Y. & Zirin, H., "The Vertical Structure of Arch Filament Systems in Solar Emerging Flux Regions", 1988ApJ...333..420C [ADS](#)
- Wang, H. & Zirin, H., "The Velocity Pattern of Weak Solar Magnetic Fields", 1988SoPh..115..205W [ADS](#)
- Gary, D. E. & Zirin, H., "Microwave Structure of the Quiet Sun", 1988ApJ...329..991G [ADS](#)
- Kahler, S. W., Moore, R. L., Kane, S. R., & Zirin, H., "Filament Eruptions and the Impulsive Phase of Solar Flares", 1988ApJ...328..824K [ADS](#)
- Simon, G. W., Title, A. M., Topka, K. P., et al., "On the Relation between Photospheric Flow Fields and the Magnetic Field Distribution on the Solar Surface", 1988ApJ...327..964S [ADS](#)
- Zirin, H. & Mosher, J. M., "The Caltech solar site survey, 1965-1967", 1988SoPh..115..183Z [ADS](#)
- Webb, D. F., Moses, J. D., Davis, J. M., et al., "The Correspondence Between Small-Scale Coronal Structures and the Evolving Solar Magnetic Field", 1988BAAS...20..722W [ADS](#)
- Cook, J. W., Bartoe, J. D. F., Brückner, G. E., et al., "Correlation of Transition Region C IV High-Velocity Events With Magnetogram and He I 10830 Å Data", 1988BAAS...20..722C [ADS](#)
- Zirin, H., "Observations of the 12-Micron Recombination Lines", 1988BAAS...20..689Z [ADS](#)
- Zirin, H., "Variability of Solar Ultraviolet Emission", 1988srov.proc..301Z [ADS](#)
- Zirin, H.: 1988c, Astrophysics of the sun 1988assu.book.....Z [ADS](#)
- Simon, G. W., November, L. J., Acton, L. W., et al., "The relation between convection flows and magnetic structure at the solar surface", 1988AdSpR...8k.133S [ADS](#)
- Simon, G. W., November, L. J., Acton, L. W., et al., "Variability of solar mesogranulation", 1988AdSpR...8g.169S [ADS](#)
- Zirin, H.: 1987a, An image processing system for research in solar physics, Final Technical Report, 15 Aug. 1986 - 14 Aug. 1987 California Inst. of Tech., Pasadena. 1987cait.reptR....Z [ADS](#)
- Zirin, H.: 1987b, Proton flares of 1980-1986, Final Technical Report, 1 Mar. - 31 Dec. 1987 California Inst. of Tech., Pasadena. 1987cait.reptS....Z [ADS](#)
- Zirin, H., "Arch Filaments Associated with the Formation of Sunspots by Umbral Merging", 1987SoPh..114..239Z [ADS](#)
- Wang, H. & Zirin, H., "The Contrast of Faculae Near the Solar Limb", 1987SoPh..110..281W [ADS](#)
- Zirin, H., "High-resolution continuum observations of the Sun", 1987NASC2483...79Z [ADS](#)
- Zirin, H. & Martin, S. F.: 1987, The appearance and disappearance of magnetic flux on the quiet sun, Final Report, 1 Oct. 1981 - 31 Dec. 1986 California Inst. of Tech., Pasadena. Solar Astronomy Group. 1987cait.reptQ....Z [ADS](#)
- Wang, H. & Zirin, H., "Supergranule and Weak Magnetic Fields Movie", 1987BAAS...19R.937W [ADS](#)
- Simon, G., Ferguson, S., Tarbell, T., et al., "On the Relation Between Large-Scale Granular Flows and Supergranules and Mesogranules", 1987BAAS...19R.935S [ADS](#)
- Topka, K., Ferguson, S., Title, A., et al., "Simultaneous Observations of Emerging Flux from the Big Bear Solar Observatory and the SOUP Instrument on Spacelab 2", 1987BAAS...19R.927T [ADS](#)
- Wang, H. & Zirin, H., "Correlation Study on the Weak Magnetic Fields", 1987BAAS...19..941W [ADS](#)
- Zirin, H. & Wang, H., "High Resolution Studies of Penumbral and Pore Phenomena", 1987BAAS...19..940Z [ADS](#)
- Shine, R. A., Title, A. M., Topka, K. P., Tarbell, T. D., & Zirin, H., "Simultaneous Sunspot Observations from the SOUP Instrument on Spacelab 2 and the Big Bear Solar Observatory", 1987BAAS...19..927S [ADS](#)
- Zirin, H., "Weak Solar Fields and Their Connection to the Solar Cycle", 1987SoPh..110..101Z [ADS](#)
- Zirin, H., "The Evidence for Magnetic Reconnection in Flares", 1987sman.work...45Z [ADS](#)
- Zirin, H. & Liggett, M. A., "Delta spots and great flares", 1987SoPh..113..267Z [ADS](#)
- Title, A. M., Tarbell, T. D., Topka, K. P., et al., "New Ideas About Granulation Based on Data from the Solar Optical Universal Polarimeter Instrument on Spacelab 2 and Magnetic Data from Big Bear Solar Observatory", in E.-H. Schröter and M. Schüssler (Eds.), Solar and Stellar Physics, Vol. 292, 173 1987LNP...292..173T [ADS](#)
- Canfield, R. C., Bely-Dumau, E., Brown, J. C., et al., "Theoretical Studies of Transport Processes", 1986epos.conf..3.34C [ADS](#)
- Canfield, R. C., Bely-Dumau, E., Brown, J. C., et al., "Impulsive Phase Observations and Their Interpretation", 1986epos.conf..3.4C [ADS](#)
- Zirin, H. & Wang, H., "High-Resolution Solar Movies by Frame Selection. Averaging and Reregistration", 1986BAAS...18..935Z [ADS](#)
- Libbrecht, K. G. & Zirin, H., "Properties of Intermediate-Degree Solar Oscillation Modes", 1986ApJ...308..413L [ADS](#)
- Zarro, D. M. & Zirin, H., "The Dependence of He I  $\lambda 10830$  Absorption Strength upon X-Ray Emission in Late-Type Stars", 1986ApJ...304..365Z [ADS](#)
- Athay, R. G., Klimchuk, J. A., Jones, H. P., & Zirin, H., "Magnetic Shear. IV. Hale Regions 16740, 16815, and 16850", 1986ApJ...303..884A [ADS](#)
- Athay, R. G., Jones, H. P., & Zirin, H., "Magnetic Shear. III. Hale Region 17255", 1986ApJ...303..877A [ADS](#)
- Moore, R. L., Kahler, S. W., Kane, S. R., & Zirin, H., "Filament Eruption Speed at the Onset of the Impulsive Phase of Solar Flares", 1986BAAS...18R.708M [ADS](#)
- Zirin, H., "The Sun, inside and out.", in M. G. Kivelson (Ed.), The Solar System, 15-27 1986sosy.book...15Z [ADS](#)
- Machado, M. E., Avrett, E. H., Falcianni, R., et al., "White light flares and atmospheric modeling (Working Group report)", 1986lasf.conf..483M [ADS](#)
- Hiei, E., Zirin, H., & Wang, J., "White light flare of 24 - 25 April 1984.", 1986lasf.conf..129H [ADS](#)
- Zirin, H., "Observation of flares in the helium lines.", 1986lasf.conf..78Z [ADS](#)
- Canfield, R. C., Bely-Dumau, E., Brown, J. C., et al., "Impulsive phase transport.", 1986NASC2439....3C [ADS](#)
- Tanaka, K. & Zirin, H., "The great flare of 1982 June 6", 1985ApJ...299.1036T [ADS](#)
- Zirin, H. & Hirayama, T., "He II emission from solar flares", 1985ApJ...299..536Z [ADS](#)
- Moore, R. L., Kahler, S. W., Kane, S. R., & Zirin, H., "Filament Eruptions in the Impulsive Phase of Solar Flares", 1985BAAS..17..905M [ADS](#)
- Wang, J., Zirin, H., & Shi, Z., "The Smallest Observable Elements of Magnetic Flux", 1985SoPh...98..241W [ADS](#)
- Zarro, D. M. & Zirin, H., "Series merging of hydrogen Balmer lines during a stellar flare", 1985A&A...148..240Z [ADS](#)
- Zarro, D. M. & Zirin, H., "The Correlation of He I  $\lambda 10830$  with Stellar X-Rays", 1985BAAS...17..753Z [ADS](#)
- Liggett, M. & Zirin, H., "Emerging Flux in Active Regions", 1985SoPh...97..51L [ADS](#)
- Zirin, H., "The rise and fall of sunspot group 18962 - A case of magnetic submergence", 1985ApJ...291..858Z [ADS](#)
- Athay, R. G., Jones, H. P., & Zirin, H., "Magnetic shear. II - Hale region 17244", 1985ApJ...291..344A [ADS](#)
- Zirin, H., "Evolution of weak solar magnetic fields", 1985AuJPh..38..961Z [ADS](#)
- Athay, R. G., Jones, H. P., & Zirin, H., "Magnetic shear. I - Hale region 16918", 1985ApJ...288..363A [ADS](#)
- Hurford, G. J., Read, R. B., & Zirin, H., "A Frequency Angle Interferometer for Solar Microwave Spectroscopy", 1984SoPh...94..413H [ADS](#)

- Zirin, H., "Evidence for magnetic field rearrangement in a solar flare", 1984ApJ...281..884Z [ADS](#)
- Zodi, A. M., Kaufmann, P., & Zirin, H., "Persistent 1.5 s oscillations superimposed to a solar burst observed at two mm-wavelengths", 1984SoPh...92..283Z [ADS](#)
- Zirin, H., "New Techniques for Global Activity Monitoring", 1984NASCP2310..301Z [ADS](#)
- Liggett, M. & Zirin, H., "Rotation in Prominences", 1984SoPh...91..259L [ADS](#)
- Zirin, H. & Hirayama, T., "Ionised Helium Emission in Solar Flares", 1984BAAS...16..545Z [ADS](#)
- Zirin, H. & Liggett, M. A., "Does New Magnetic Flux Preferentially Emerge in Old Active Regions?", 1984BAAS...16..534Z [ADS](#)
- Zarro, D. M. & Zirin, H., "Balmer Spectra of Flares on YZ CMi", 1984BAAS...16..508Z [ADS](#)
- Tandberg-Hanssen, E., Kaufmann, P., Reichmann, E. J., et al., "Observation of the impulsive phase of a simple flare.", 1984SoPh...90..41T [ADS](#)
- Zirin, H., "The 1981 July 26-27 flares - Magnetic developments leading to and following flares", 1983ApJ...274..900Z [ADS](#)
- Zirin, H., "SOT - A new look at the sun", 1983AsAer..21..66Z [ADS](#)
- Feldman, U., Liggett, M., & Zirin, H., "He D3 as a diagnostic for the hard and soft X-rays from solar flares", 1983ApJ...271..832F [ADS](#)
- Zirin, H., "The Optical Flare", 1983SoPh...86..173Z [ADS](#)
- Zodi, A. M., Kaufmann, P., & Zirin, H.: 1983, Persistent 1.5s oscillations superimposed to a solar burst observed at two mm-wavelengths 1983STIN...8327948Z [ADS](#)
- Hoyng, P., Marsh, K. A., Zirin, H., & Dennis, B. R., "Microwave and hard X-ray imaging of a solar flare on 1980 November 5", 1983ApJ...268..865H [ADS](#)
- Liggett, M. & Zirin, H., "Naked Sunspots", 1983SoPh...84..3L [ADS](#)
- Athay, R. G., Jones, H. P., & Zirin, H., "Photospheric, Chromospheric and Transition-Region Flows in AR 2517", 1983BAAS...15Q.719A [ADS](#)
- Tanaka, K. & Zirin, H., "The June 6, 1982 Flare", 1983BAAS...15..712T [ADS](#)
- Zirin, H., "High-Resolution Film Photography From SOT: Science with the Photometric Filtergraph", 1983BAAS...15..709Z [ADS](#)
- Moore, R. L., Tandberg-Hanssen, E., Reichmann, E. J., et al., "The Impulsive Phase of a Simple Flare", 1983BAAS...15..697M [ADS](#)
- Zirin, H., Martin, S. F., & Walton, S. R.: 1982, Analysis of flares observed during the solar maximum year, Final Report California Inst. of Tech., Pasadena. 1982cait.rept.....Z [ADS](#)
- Zirin, H., "Lambda 10830 He I observations of 455 stars.", 1982ApJ...260..655Z [ADS](#)
- Zirin, H. & Liggett, M. A., "The variable HE 10830 angstrom line of Algol.", 1982ApJ...259..719Z [ADS](#)
- Riegler, G. R., Ling, J. C., Mahoney, W. A., et al., "Gamma-ray and optical observations of the 1979 November 8 solar flare", 1982ApJ...259..392R [ADS](#)
- Hurford, G. J. & Zirin, H.: 1982, Interferometric observations of solar flare precursors at 10.6 GHz, Final Report, Oct. 1980 - Jan. 1982 California Inst. of Tech., Pasadena. 1982cait.rept.....H [ADS](#)
- Zirin, H., Liggett, M., & Patterson, A., "The H $\alpha$ /H-Beta Ratio in Solar Flares", 1982SoPh...76..387Z [ADS](#)
- Marsh, K. A., Hurford, G. J., Zirin, H., et al., "Properties of solar flare electrons, deduced from hard X-ray and spatially resolved microwave observations", 1981ApJ...251..797M [ADS](#)
- Zirin, H. & Tanaka, K., "Magnetic transients in flares", 1981ApJ...250..791Z [ADS](#)
- Zirin, H. & Neidig, D. F., "Continuum emission in the 1980 July 1 solar flare", 1981ApJ...248L..45Z [ADS](#)
- Zirin, H., Feldman, U., Doschek, G. A., & Kane, S., "On the relationship between soft X-rays and H-alpha-emitting structures during a solar flare", 1981ApJ...246..321Z [ADS](#)
- Marsh, K. A., Zirin, H., Hoyng, P., & Dennis, B. R., "The Relationship Between the Microwave and Hard X-Ray Sources in a Solar Flare", 1981BAAS...13..889M [ADS](#)
- Patterson, A. & Zirin, H., "Can magnetic transients be explained by line emission?", 1981BAAS...13..821P [ADS](#)
- Patterson, A. & Zirin, H., "Can Magnetic Transients be Explained by Line Emission?", 1981BAAS...13..820P [ADS](#)
- Zirin, H., "Near Infrared Spectra of Algol B", 1981BAAS...13..804Z [ADS](#)
- Zirin, H., "Microwave Observations of the Solar Atmosphere", 1981BAAS...13..559Z [ADS](#)
- Hurford, G. J., Marsh, K. A., & Zirin, H., "High Spectral Resolution Observations of Solar Microwave Emission", 1981BAAS...13..553H [ADS](#)
- Horne, K., Hurford, G. J., Zirin, H., & de Graauw, T., "Solar limb brightening at 1.3 millimeters", 1981ApJ...244..340H [ADS](#)
- Webb, D. F. & Zirin, H., "Coronal Loops and Active Region Structure", 1981SoPh...69..99W [ADS](#)
- Patterson, A. & Zirin, H., "Transient magnetic field changes in flares", 1981ApJ...243L..99P [ADS](#)
- Marsh, K. A., Hurford, G. J., & Zirin, H., "High resolution interferometric observations of the solar limb at 4.9 and 10.7 GHz during the solar eclipse of October, 1977", 1981A&A...94..67M [ADS](#)
- Marsh, K. A., Hurford, G. J., Zirin, H., & Hjellming, R. M., "VLA observations of impulsive solar flares at 4.9 GHz", 1980ApJ...242..352M [ADS](#)
- Zirin, H., "Magnetic Transients in Solar Flares", 1980BAAS...12..907Z [ADS](#)
- Marsh, K. A., Hurford, G. J., Zirin, H., & Dulk, G. A., "Microwave Movie of a Solar Flare", 1980BAAS...12..892M [ADS](#)
- Hurford, G. J., Marsh, K. A., Zirin, H., et al., "Spectra and Polarization of the Spatial Structure of Impulsive Solar Microwave Bursts", 1980BAAS...12..892H [ADS](#)
- Marsh, K. A., Hurford, G. J., Zirin, H., & Dulk, G. A., "Microwave Movie of a Solar Flare", 1980BAAS...12..794M [ADS](#)
- Zirin, H. & Moore, R. L., "A Continuum Bright Point at the Penumbral Edge", 1980SoPh...67..79Z [ADS](#)
- Mochnicki, S. W. & Zirin, H., "Multichannel spectrophotometry of stellar flares.", 1980ApJ...239L..27M [ADS](#)
- Zirin, H. & Patterson, A., "Observations of Transient Magnetic Fields in Two Solar Flares", 1980BAAS...12..515Z [ADS](#)
- Marsh, K. A., Zirin, H., & Hurford, G. J., "Multifrequency Observations of a Solar Flare at up to 0.2" Spatial Resolution", 1980BAAS...12..478M [ADS](#)
- Hurford, G. J., Marsh, K. A., & Zirin, H., "Microwave Images of Solar Bursts with Arcsecond Resolution", 1980BAAS...12..478H [ADS](#)
- Marsh, K. A., Hurford, G. J., & Zirin, H., "VLA observations of spatial structure in the quiet sun at 6 centimeters, during the 1977 October eclipse", 1980ApJ...236..1017M [ADS](#)
- Kahler, S., Spicer, D., Uchida, Y., & Zirin, H., "Primary energy release", 1980sfs1.work..83K [ADS](#)
- Marsh, K. A., Hurford, G. J., & Zirin, H., "The spatial structure of solar microwave bursts", 1980IAUS...86..191M [ADS](#)
- Hurford, G. J., Marsh, K. A., & Zirin, H., "Interferometric Observations of the Extreme Solar Limb at 2.8 and 6 cm during the October 1977 Eclipse", 1980IAUS...86..61H [ADS](#)
- Zirin, H., "Three flares with blue continuum, one with a D3 preflare shell", 1980ApJ...235..618Z [ADS](#)
- Horne, K., Hurford, G. J., Zirin, H., & de Graauw, T., "Solar Structure at 1.3 mm", 1979BAAS...11..710H [ADS](#)
- Hurford, G. J., Marsh, K. A., Zirin, H., & Kaufmann, P., "Interferometric Observations of Subsecond Spikes in a Solar Microwave Burst", 1979BAAS...11..678H [ADS](#)
- Mochnicki, S. & Zirin, H., "32-Channel Spectrophotometry of Stellar Flares", 1979BAAS...11..629M [ADS](#)
- Webb, D. F. & Zirin, H., "Physical Processes of Active Region Coronal Loops", 1979BAAS...11R.410W [ADS](#)
- Marsh, K. A., Hurford, G. J., & Zirin, H., "VLA observations of solar flares, interpreted with optical, X-ray, and other microwave data.", 1979ApJ...228..610M [ADS](#)
- Acton, L. W., Engvold, O., Milkey, R. W., Orrall, F. Q., & Zirin, H., "Discussion", 1979phsp.coll..354A [ADS](#)
- Anzer, U., Engvold, O., Spicer, D. S., van Tend, W., & Zirin, H., "Discussion", 1979phsp.coll..331A [ADS](#)
- Heyvaerts, J., Sheridan, K. V., & Zirin, H., "Discussion", 1979phsp.coll..320H [ADS](#)
- Gaiauskas, V., Heyvaerts, J., Hirayama, T., et al., "Discussion", 1979phsp.coll..301G [ADS](#)
- Engvold, O., Gaiauskas, G., Rust, D. M., et al., "Discussion", 1979phsp.coll..207E [ADS](#)
- Zirin, H., "The Ecology of Prominences.", 1979phsp.coll..193Z [ADS](#)
- Acton, L. W., Anzer, U., Engvold, O., et al., "Discussion", 1979phsp.coll..164A [ADS](#)
- Chiuderi-Drago, F., Kundu, M. R., Lantos, P., & Zirin, H., "Discussion", 1979phsp.coll..134C [ADS](#)
- Brückner, J., Hirayama, T., Maltby, P., Schmahl, E. J., & Zirin, H., "Discussion", 1979phsp.coll..121B [ADS](#)
- Acton, L. W., Engvold, O., Heasley, J. N., et al., "Discussion", 1979phsp.coll..31A [ADS](#)
- Mochnicki, S., Whelan, J., Berriman, G., et al.: 1979, Binary Stars - Stellar Coronae - Red Giants in Old Disk Clusters - Lower Main Sequence - Degenerate Stars - Rotating Magnetic White Dwarf, Annual Report to Director Hale Observatories, p. 727, 1979 1979haob.rept..727M [ADS](#)
- Howard, R., Goeden, R., Eaton, S., et al.: 1979, Physics of the Sun - Synoptic Observations at MT.WILSON Rotation of the Sun - Large-Scale Velocity Fields - Active Regions Regions - Solar Axis Elements - Big Bear Solar Observatory - Instruments - Blue Continuum in Flares - Thermal X-Ray Plasma in Solar Flares, Annual Report to Director Hale Observatories, p. 716, 1979 1979haob.rept..716H [ADS](#)

- Dunn, R. B., Fisher, R., Harvey, J., et al., "Science opportunities with the SOT", 1979MmArc.106..245D [ADS](#)
- Dunn, R. B., Fisher, R., Harvey, J., et al., "Solar optical telescope (SOT)", 1979MmArc.106..135D [ADS](#)
- Zirin, H., "Erratum: "The Lalpha /Halpha ratio in solar flares, quasars, and the chromosphere" [Astrophys. J. Lett., Vol. 222, p. L105 - L107 (1978).]", 1979ApJ...227L.111Z [ADS](#)
- Zirin, H., "Optical observations of the sun from a solar probe", 1978cIus.nasa...89Z [ADS](#)
- Marsh, K. A., Hurford, G. J., Zirin, H., & Hjellming, R. M., "The Spatial Structure of Solar Microwave Bursts at High Resolution", 1978BAAS...10..672M [ADS](#)
- Zirin, H., Hurford, G. J., & Marsh, K. A., "The small-scale sources of quiet-Sun centimeter-wave radio emission.", 1978ApJ...224.1043Z [ADS](#)
- Zirin, H., "Studies of solar flares using optical, X-ray and radio data", 1978SoPh...58..95Z [ADS](#)
- Zirin, H., "The Lalpha /Halpha ratio in solar flares, quasars, and the chromosphere.", 1978ApJ...222L.105Z [ADS](#)
- Marsh, K. A., Zirin, H., & Hurford, G. J., "VLA Observations of Solar Flares", 1978BAAS...10R.454M [ADS](#)
- Zirin, H.: 1976a, Cooperative studies of solar activity and chromospheric structure, Final Report, 1 Oct. 1975 - 30 Oct. 1976 California Inst. of Tech., Pasadena. 1976cait.rept.....Z [ADS](#)
- Zirin, H., "Production of a short-lived filament by a surge.", 1976SoPh...50..399Z [ADS](#)
- Zirin, H., "Further observations of the lambda 10830 helium line in stars and their significance as a measure of stellar activity", 1976ApJ...208..414Z [ADS](#)
- Zirin, H. & Tanaka, K., "Prospectus for the Solar Maximum Year (Invited report)", 1976SoPh...47..385Z [ADS](#)
- Zirin, H., Moore, R. L., & Walter, J., "Proceedings of the workshop: the solar constant and the earth's atmosphere. held at Big Bear Solar Observatory, North Shore Drive, Big Bear City, Calif, 19 - 21 May 1975.", 1976SoPh...46..377Z [ADS](#)
- Zirin, H.: 1976a, Production of a short-lived filament by a surge 1976STIN...7623136Z [ADS](#)
- Zirin, H., "Fe XIII line in R Aquarii", 1976Natur.259..466Z [ADS](#)
- Zirin, H.: 1975, Further observations of the lambda 10830 He line in stars and their significance as a measure of stellar activity 1975STIN...761499Z [ADS](#)
- Zirin, H. & Moore, R. L.: 1975, Cooperative studies of chromospheric structure and magnetic fields, Final Report, 1 Oct 1972 - 30 Jun. 1975 California Inst. of Tech., Pasadena. 1975cait.rept.....Z [ADS](#)
- Zirin, H., "The helium chromosphere, coronal holes, and stellar X-rays.", 1975ApJ...199L..63Z [ADS](#)
- Zirin, H., "Results of 10830 Observations in 217 Stars.", 1975BAAS....7..470Z [ADS](#)
- Zirin, H. & Walter, J.: 1975, Proceedings of the Workshop: The Solar Constant and the Earth's Atmosphere, Conf. held at Big Bear City, Calif, 19-21 May 1975 1975STIN...7815983Z [ADS](#)
- Zirin, H. & Lazareff, B., "Sunspot Motion, Flares and Type III Bursts in McMath 11482", 1975SoPh...41..425Z [ADS](#)
- Zirin, H., "The D3 Chromosphere, Coronal Holes, and Stellar X-Rays", 1975BAAS....7..359Z [ADS](#)
- , "The Solar Constant and the Earth's Atmosphere", 1975scea.conf.....Z [ADS](#)
- Zirin, H., "Development of Activity in McMath 128 and the 24 January 1971 Flare", 1975BBSOP.112....1Z [ADS](#)
- Zirin, H., "Studies of K Line Filtergrams", 1974SoPh...38..91Z [ADS](#)
- Zirin, H., Holt, J., Brückner, G. E., et al., "Cinematographic Observations for ATM and their Comparison with some ATM Results", 1974BAAS....6R.298Z [ADS](#)
- Zirin, H., "Spicules and Fibrils in H $\alpha$  and K", 1974BAAS....6Q.298Z [ADS](#)
- Zirin, H., "Stellar spectroscopy at I.I. textmu.", 1974sis...conf..357Z [ADS](#)
- Zirin, H., "Solar flares", 1974VA....16....1Z [ADS](#)
- Zirin, H., "The Magnetic Structure of Plages", 1974IAUS...56..161Z [ADS](#)
- Zirin, H., "Spicules are Bright and Dark", 1974IAUS...56..49Z [ADS](#)
- Zirin, H. & Tanaka, K., "The Flares of August 1972", 1973SoPh...32..173Z [ADS](#)
- Zirin, H. & Tanaka, K., "The Flares of August", 1973BAAS....5R.282Z [ADS](#)
- Tanaka, K. & Zirin, H., "Motions and Heating of the August Flares", 1973BAAS....5R.281T [ADS](#)
- Datlowe, D. W., Peterson, L. E., Tanaka, K., & Zirin, H., "X-ray Observations from the August 2, 1972 Flare", 1973BAAS....5R.270D [ADS](#)
- Lang, K. R. & Zirin, H., "Interferometry of Solar Radio Sources at 15,000 Wavelengths", 1973BAAS....5Q.275L [ADS](#)
- Tanaka, K. & Zirin, H., "Optical Observations of the August 1972 Flares", in NASA Special Publication, Vol. 342, 26 1973NASSP.342...26T [ADS](#)
- Zirin, H., "The Sun's Atmosphere. (Book Reviews: Physics of the Solar Corona. Proceedings of a NATO Advanced Study Institute, Athens, Greece, Sept. 1970)", 1972Sci...178.1085Z [ADS](#)
- Zirin, H. & Stein, A., "Observations of Running Penumbral Waves", 1972ApJ...178L..85Z [ADS](#)
- Zirin, H., "The Absence of Flares in  $\lambda$  3835 and the Heating of the Chromosphere", 1972SoPh...26..393Z [ADS](#)
- Foukal, P. & Zirin, H., "Reply to 'The relations between chromospheric features and photospheric magnetic fields' by E. N. Frazier", 1972SoPh...26..148F [ADS](#)
- Zirin, H., "Response to Dr Frazier's Comments", 1972SoPh...26..145Z [ADS](#)
- Stein, A. & Zirin, H., "Bright Running Penumbral Waves", 1972BAAS....4T.392S [ADS](#)
- Zirin, H., "High resolution solar observations from space.", 1972spre.conf.1751Z [ADS](#)
- Zirin, H., "Fine Structure of Solar Magnetic Fields", 1972SoPh...22..34Z [ADS](#)
- Zirin, H., Pruss, G., & Vorpahl, J., "Magnetic Fields, Bremsstrahlung and Synchrotron Emission in the Flare of 24 October 1969", 1971SoPh...19..463Z [ADS](#)
- Zirin, H., "Evidence for Magnetic Field Reconnection in Flares.", 1971BAAS....3..461Z [ADS](#)
- Zirin, H., "Observations of Stellar Chromospheres", 1971RSPTA.270..183Z [ADS](#)
- Zirin, H., "The Manifold Structure of the Chromosphere and Corona", 1971RSPTA.270..77Z [ADS](#)
- Pasachoff, J. M. & Zirin, H., "On K-Line Central Reversals", 1971SoPh...18..27P [ADS](#)
- Zirin, H., "Magnetic field morphology and the development of active regions.", 1971BAAS....3..266Z [ADS](#)
- Zirin, H., "Application of the Chromospheric Magnetograph to Active Regions (presented by P. Foukal)", 1971IAUS...43..237Z [ADS](#)
- Zirin, H., "Die Fackelfeuer der Sonne.", 1971BiWis...8..883Z [ADS](#)
- Zirin, H., "Active Regions. II: Mount Wilson 16997. A Small Spot with Big Flares", 1970SoPh...14..342Z [ADS](#)
- Zirin, H., "Active Regions. I: The Occurrence of Solar Flares and the Development of Active Regions", 1970SoPh...14..328Z [ADS](#)
- Weeder, G. J. & Zirin, H., "The Chromospheric Magnetograph", 1970SoPh...12..391V [ADS](#)
- Zirin, H., "The Big Bear Solar Observatory", 1970S&T....39..215Z [ADS](#)
- Zirin, H., "Coronagraph Observations of the Coronal Condensation of 4 February 1962", 1970SoPh...11..497Z [ADS](#)
- Vorpahl, J. & Zirin, H., "Identification of the hard X-ray pulse in the flare of September 11, 1968", 1970SoPh...11..285V [ADS](#)
- Simon, M. & Zirin, H., "The Coarse Structure of the Solar Atmosphere", 1969SoPh...9..317S [ADS](#)
- Zirin, H., Ingham, W., Hudson, H., & McKenzie, D., "De-Occultation X-Ray Events of 2 December, 1967", 1969SoPh....9..269Z [ADS](#)
- Zirin, H., "Interpretation of XUV Spectroheliograms", 1969SoPh...9..77Z [ADS](#)
- Weart, S. R. & Zirin, H., "The Birth of Active Regions", 1969PASP...81..270W [ADS](#)
- Hudson, H., McKenzie, D., Zirin, H., & Ingham, W., "De-occultation x-Ray Event of 2 December 1967", 1969BAAS....1T.280H [ADS](#)
- Weart, S., Zirin, H., & Kozlovsky, B.-Z., "The Birth of Active Regions", 1969BAAS....1Q.295W [ADS](#)
- Zirin, H., Bohlin, J. D., Weart, S., & Feldman, U., "Round-the-Clock Photoheliography", 1969BAAS....1..297Z [ADS](#)
- Zirin, H., "High-Resolution Flare Observations", 1969BAAS....1..296Z [ADS](#)
- Zirin, H., "Two Prominence Eruptions and the Problem of Emission", 1969SoPh...7..243Z [ADS](#)
- Zirin, H.: 1969c, The solar atmosphere. 1969soat.book.....Z [ADS](#)
- Zirin, H. & Lackner, D. R., "The Solar Flares of August 28 and 30, 1966", 1969SoPh...6..86Z [ADS](#)
- Zirin, H., "George Ellery Hale, 1868 1938", 1968SoPh...5..435Z [ADS](#)
- Zirin, H., "Abundance Analyses from Extreme-Ultraviolet Emission Lines", 1968ApJ...154..799Z [ADS](#)
- Kozlovsky, B.-Z. & Zirin, H., "The O VI emission from the sun", 1968SoPh...5..50K [ADS](#)
- Zirin, H., "He $\beta$  in Several Magnetic Stars", 1968ApJ...152L.177Z [ADS](#)
- Vaughan, Arthur H. J. & Zirin, H., "The Helium Line  $\lambda$  10830 Å in Late-Type Stars", 1968ApJ...152..123V [ADS](#)
- Zirin, H., "The Solar Atmosphere", 1968ASPL...10..121Z [ADS](#)
- Zirin, H., "Observations of stellar chromospheres using the He 10830 line", 1968mmsf.conf..239Z [ADS](#)
- Zirin, H., "Mass motions in loops, sprays, surges etc., Introductory lecture", 1968mmsf.conf..131Z [ADS](#)

- Zirin, H., "The Excitation of Coronal Emission Lines as a Measure of Electron Density", 1968ApJ...151..383Z [ADS](#)
- Zirin, H. & Allen, C. W., "Book Reviews", 1967GeoJ...12..539Z [ADS](#)
- Zirin, H. & Acton, L. W., "Spectrographic Observations of the Flare of July 20, 1961", 1967ApJ...148..501Z [ADS](#)
- Zirin, H., "Interpretation of chromospheric structure in the light limb and XUV observation", 1967AJ....72..329Z [ADS](#)
- Zirin, H., "The Solar Atmosphere", in H. Odishaw (Ed.), The Earth in Space, 25 1967easp.book...25Z [ADS](#)
- Zirin, H., "Buchbesprechungen über: The Solar Atmosphere. (Ref. E. A. MÜLLER)", 1967ZA.....67..413Z [ADS](#)
- Zirin, H. & Werner, S., "Detailed analysis of flares, magnetic fields and activity in the sunspot group of Sept. 13 26, 1963", 1967SoPh....1..66Z [ADS](#)
- Norton, R. H., Gunn, J. E., Livingston, W. C., Newkirk, G. A., & Zirin, H., "Surveyor 1 Observations of the Solar Corona", 1967JGR....72..815N [ADS](#)
- Zirin, H. & Howard, R., "The Structure of the Solar Chromosphere. II. Spectroheliograms in  $\lambda$  10830 Å and Their Interpretation", 1966ApJ...146..367Z [ADS](#)
- Zirin, H., "The Sun. (Book Reviews: Physics of the Solar Corona)", 1966Sci...154..497Z [ADS](#)
- Zirin, H. & Vaughan, Arthur H. J., "Helium 10830 Absorption in Late-Type Stars.", 1966AJ.....71..188Z [ADS](#)
- Zirin, H.: 1966, *The solar atmosphere* 1966soat.book.....Z [ADS](#)
- Lee, R. H., Rust, D. M., & Zirin, H., "The solar magnetograph of the High Altitude Observatory", 1965ApOpt..4..1081L [ADS](#)
- Howard, R., Leighton, R., Zirin, H., & Whitford, A. E., "Solar Astronomy Neglected", 1965Sci...147.1087H [ADS](#)
- Zirin, H., "Introductory report", 1965IAUS...22..339Z [ADS](#)
- Zirin, H., "Observations of chromospheric fine structure", 1965IAUS...22..197Z [ADS](#)
- Zirin, H., "Solar Flares and Concurrent Phenomena in the Solar Atmosphere", 1965ASSL....3..38Z [ADS](#)
- Zirin, H., "Identification of Extreme Ultraviolet Solar Emission Lines.", 1964ApJ...140.1332Z [ADS](#)
- Zirin, H., "The Limb Flare of November 20, 1960: a Coronal Phenomenon.", 1964ApJ...140.1216Z [ADS](#)
- Glasco, H. P. & Zirin, H., "Average Recombination Gaunt Factors.", 1964ApJS....9..193G [ADS](#)
- Zirin, H., "Spectrographic Observations", in NASA Special Publication, Vol. 50, 33 1964NASSP..50..33Z [ADS](#)
- Zirin, H., James, R., & Watson, D. K., "Identification of the Spurious D3 Helium Emission from the Solar Corona.", 1964AJ.....69Q.565Z [ADS](#)
- Zirin, H. & Dietz, R. D., "The Structure of the Solar Chromosphere. I. a Picture Based on Extreme Ultraviolet, Millimeter, and  $\lambda$  10830 Data.", 1963ApJ...138..664Z [ADS](#)
- Cragg, T., Howard, R., & Zirin, H., "Vertical Structures in the Chromosphere.", 1963ApJ...138..303C [ADS](#)
- Zirin, H., "Coronal Observations and Rocket Solar Ultraviolet Results", 1963AIAAJ...1.1286Z [ADS](#)
- Zirin, H., Hall, L. A., & Hinteregger, H. E., "Analysis of the Solar Emission Spectrum from 1300 to 250 Å as Observed in August 1961", 1963spre.conf..760Z [ADS](#)
- Firor, J. & Zirin, H., "Relative Populations of Fe in the Corona.", 1963IAUS...16..27F [ADS](#)
- Zirin, H., "Coronal Emission from Solar Flares.", 1963AJ.....68Q..82Z [ADS](#)
- Zirin, H., "Physical Conditions in Limb Flares and Active Prominences. V. Excitation and Ionization of Helium and Metals.", 1962ApJ...135..521Z [ADS](#)
- Zirin, H., "Another Model of the Coronal Ionization Equilibrium.", 1962AJ.....67..124Z [ADS](#)
- Zirin, H., "Magnetic Fields in Prominences at the Limb", 1962IAUTB..11..439Z [ADS](#)
- Firor, J. & Zirin, H., "Observations of Five Ionization Stages of Iron in the Solar Corona.", 1962ApJ...135..122F [ADS](#)
- Zirin, H. & Severny, A., "Measurement of magnetic fields in solar prominences", 1961Obs....81..155Z [ADS](#)
- House, L. L., Athay, R. G., & Zirin, H., "The Balmer-Paschen Ratio in the Chromosphere and the Equilibrium Populations of Hydrogen Angular-Momentum States.", 1961ApJ...133..608H [ADS](#)
- Roberts, W. O. & Zirin, H., "Corrigenda", 1961JGR....66..340R [ADS](#)
- Eddy, J. A., House, L. L., & Zirin, H., "Oscillator Strength for the  $3s3p\hat{2}S-3s\hat{2}3p\hat{2}P$  Transition in AL I", 1961ApJ...133..299E [ADS](#)
- Münch, G. & Zirin, H., "Interstellar Matter at Large Distances from the Galactic Plane.", 1961ApJ...133..11M [ADS](#)
- Ramseyer, H., Warwick, J. W., & Zirin, H., "Connection of a Loop Prominence with a Sunspot", 1960PASP....72..509R [ADS](#)
- Newkirk, G. A., Warwick, J. W., & Zirin, H., "Backscatter of Cosmic Rays by the Sun's H II Sphere", 1960JGR....65.2540N [ADS](#)
- Newkirk, G. A., Warwick, J. W., & Zirin, H., "Backscatter of Cosmic Rays by the Sun's HII Sphere.", 1960AJ.....65..351N [ADS](#)
- Roberts, W. O. & Zirin, H., "Recent Progress in Solar Physics", 1960JGR....65.1645R [ADS](#)
- Zirin, H. & Tandberg-Hanssen, E., "Physical Conditions in Limb Flares and Active Prominences.IV. Comparison of Active and Quiescent Prominences.", 1960ApJ...131..717Z [ADS](#)
- Lüst, R. & Zirin, H., "Condensation of Prominences from the Corona. With 1 Figure in the text", 1960ZA.....49....8L [ADS](#)
- Firor, J. & Zirin, H., "Photography of the Infrared Coronal Lines 10747 and 10798 Å with Image Tubes.", 1960AJ.....65Q.345F [ADS](#)
- Schwartz, S. B. & Zirin, H., "Collisional Ionization Cross-Section for Fe XIV in the Solar Corona and the Coronal Electron Temperature.", 1959ApJ...130..384S [ADS](#)
- Zirin, H., "Physical Conditions in Limb Flares and Active Prominences. II. a Remarkable Limb Flare, December 18, 1956.", 1959ApJ...129..414Z [ADS](#)
- Tandberg-Hanssen, E. & Zirin, H., "Physical Conditions in Limb Flares and Active Prominence. I. The Loop Prominence of November 12 and 22, 1956.", 1959ApJ...129..408T [ADS](#)
- Zirin, H., "The Calculation of Opacities for Stellar Interiors.", 1958ApJ...128..342Z [ADS](#)
- Zirin, H., Watson, K., & Curtis, G. W., "Spectra of Quiescent and Loop Prominences", 1958PASP...70..406Z [ADS](#)
- Warwick, J. W. & Zirin, H., "Rocket Observation of X-Ray Emission in a Solar Flare", 1957Natur.180..500W [ADS](#)
- Zirin, H., "On the Enhancement of Certain Helium Lines in the Limb Flare of June 24, 1956.", 1957ApJ...126..159Z [ADS](#)
- Zirin, H., "Observations of the calcium coronal lines in the vicinity of a limb flare.", 1957AJ.....62..149Z [ADS](#)
- Athay, R. G. & Zirin, H., "On the relative intensities of chromospheric Balmer and Paschen lines.", 1957AJ.....62..137A [ADS](#)
- Zirin, H., "Comprehensive graded-height spectra of solar prominences.", 1957AJ.....62..42Z [ADS](#)
- Chapman, S. & Zirin, H., "Notes on the Solar Corona and the Terrestrial Ionosphere", 1957SCoA....2....1C [ADS](#)
- Wild, J. P. & Zirin, H., "On the Association of Solar Radio Emission and Solar Prominences", 1956AuJPh...9..315W [ADS](#)
- Zirin, H., "The Temperature and Equilibrium of Hydrogen in Solar Prominences.", 1956ApJ...124..451Z [ADS](#)
- Zirin, H., "The Helium Equilibrium in Prominences and the Chromosphere.", 1956ApJ...123..536Z [ADS](#)
- Zirin, H., "High dispersion spectra of prominence and coronal emission lines.", 1956AJ.....61..14Z [ADS](#)
- Wild, J. P. & Zirin, H., "On the association of solar radio emission and solar prominences.", 1956AJ.....61Q.193W [ADS](#)
- Zirin, H., "Coronal line at 4412A", 19550bs....75..221Z [ADS](#)
- Zirin, H., "Wave Functions, Spin-Orbit and Spin-Spin Parameters for the  $1s22s2p\hat{4}$  Isoelectronic Sequence.", 1955ApJ...122..52Z [ADS](#)
- Layzer, D. & Zirin, H., "Energy Levels in the Ground Terms of the Ions A XIII-Ti XVII", 1955ApJ...121..771L [ADS](#)
- Zirin, H., "Spin-Orbit Parameters for the  $p\hat{2}$  Configuration, with Special Reference to the Yellow Coronal Line", 1955ApJ...121..528Z [ADS](#)
- Layzer, D. & Zirin, H.: 1955, *Energy levels in the ground terms of the ions A XIII - Ti XVII* 1955e1gt.book.....L [ADS](#)
- Billings, D. E. & Zirin, H., "The temperature of prominences in active solar regions.", 1955AJ.....60Q.155B [ADS](#)
- Zirin, H., "Radiative Opacity of Stellar Matter.", 1954ApJ...119..371Z [ADS](#)
- Zirin, H., "Radiative opacity of stellar matter", 1953AJ.....58..50Z [ADS](#)
- Zirin, H.: 1953b, "The Radiative Opacity of Stellar Matter.", Ph.D. thesis, Harvard University, Massachusetts 1953PhDT.....1Z [ADS](#)
- Zirin, H., "On the Polarization of Starlight", 1952BHar0.921..26Z [ADS](#)
- Zirin, H., "The Growth and Evolution of Interstellar Dust", 1952BHar0.921..19Z [ADS](#)
- Zirin, H., "An objective prism study of peculiar A stars.", 1951AJ.....56..146Z [ADS](#)
- Zirin, H., "A List of Peculiar A Stars on Objective Prism Plates", 1951BHar0.920..38Z [ADS](#)
- Zirin, H., "An objective prism study of peculiar A stars.", 1951AJ.....56R.146Z [ADS](#)