

Kevin Heng

List of Publications by Year in descending order

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119
papers

7,027
citations

50276

46
h-index

71685

76
g-index

129
all docs

129
docs citations

129
times ranked

3561
citing authors

#	ARTICLE	IF	CITATIONS
1	A Framework for Prioritizing the <i>TESS</i> Planetary Candidates Most Amenable to Atmospheric Characterization. Publications of the Astronomical Society of the Pacific, 2018, 130, 114401.	3.1	314
2	INFERENCE OF INHOMOGENEOUS CLOUDS IN AN EXOPLANET ATMOSPHERE. Astrophysical Journal Letters, 2013, 776, L25.	8.3	250
3	A map of the large dayâ€“night temperature gradient of a super-Earth exoplanet. Nature, 2016, 532, 207-209.	27.8	225
4	Can we constrain the interior structure of rocky exoplanets from mass and radius measurements?. Astronomy and Astrophysics, 2015, 577, A83.	5.1	199
5	Atmospheric circulation of tidally locked exoplanets: a suite of benchmark tests for dynamical solvers. Monthly Notices of the Royal Astronomical Society, 2011, 413, 2380-2402.	4.4	184
6	Atomic iron and titanium in the atmosphere of the exoplanet KELT-9b. Nature, 2018, 560, 453-455.	27.8	179
7	Atmospheric Dynamics of Hot Exoplanets. Annual Review of Earth and Planetary Sciences, 2015, 43, 509-540.	11.0	149
8	A spectral survey of an ultra-hot Jupiter. Astronomy and Astrophysics, 2019, 627, A165.	5.1	145
9	THE DEEP BLUE COLOR OF HD 189733b: ALBEDO MEASUREMENTS WITH <i>HUBBLE SPACE TELESCOPE</i> /SPACE TELESCOPE IMAGING SPECTROGRAPH AT VISIBLE WAVELENGTHS. Astrophysical Journal Letters, 2013, 772, L16.	8.3	138
10	Habitable Moist Atmospheres on Terrestrial Planets near the Inner Edge of the Habitable Zone around M Dwarfs. Astrophysical Journal, 2017, 845, 5.	4.5	138
11	UNDERSTANDING TRENDS ASSOCIATED WITH CLOUDS IN IRRADIATED EXOPLANETS. Astrophysical Journal, 2013, 777, 100.	4.5	135
12	VULCAN: An Open-source, Validated Chemical Kinetics Python Code for Exoplanetary Atmospheres. Astrophysical Journal, Supplement Series, 2017, 228, 20.	7.7	135
13	<tt>HELIOS-K</tt>: AN ULTRAFast, OPEN-SOURCE OPACITY CALCULATOR FOR RADIATIVE TRANSFER. Astrophysical Journal, 2015, 808, 182.	4.5	129
14	HELIOS: AN OPEN-SOURCE, GPU-ACCELERATED RADIATIVE TRANSFER CODE FOR SELF-CONSISTENT EXOPLANETARY ATMOSPHERES. Astronomical Journal, 2017, 153, 56.	4.7	128
15	THE DEPENDENCE OF BROWN DWARF RADII ON ATMOSPHERIC METALLICITY AND CLOUDS: THEORY AND COMPARISON WITH OBSERVATIONS. Astrophysical Journal, 2011, 736, 47.	4.5	127
16	THE EFFECTS OF IRRADIATION ON HOT JOVIAN ATMOSPHERES: HEAT REDISTRIBUTION AND ENERGY DISSIPATION. Astrophysical Journal, 2012, 751, 59.	4.5	126
17	A generalized Bayesian inference method for constraining the interiors of super Earths and sub-Neptunes. Astronomy and Astrophysics, 2017, 597, A37.	5.1	121
18	Atmospheric circulation of tidally locked exoplanets: II. Dual-band radiative transfer and convective adjustment. Monthly Notices of the Royal Astronomical Society, 2011, 418, 2669-2696.	4.4	115

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19	A giant planet candidate transiting a white dwarf. <i>Nature</i> , 2020, 585, 363-367.	27.8	111
20	The Peculiar Atmospheric Chemistry of KELT-9b. <i>Astrophysical Journal</i> , 2018, 863, 183.	4.5	107
21	HELIOSâ€“RETRIEVAL: An Open-source, Nested Sampling Atmospheric Retrieval Code; Application to the HR 8799 Exoplanets and Inferred Constraints for Planet Formation. <i>Astronomical Journal</i> , 2017, 154, 91.	4.7	101
22	The Transiting Exoplanet Community Early Release Science Program for <i>JWST</i>. <i>Publications of the Astronomical Society of the Pacific</i> , 2018, 130, 114402.	3.1	100
23	The theory of transmission spectra revisited: a semi-analytical method for interpreting WFC3 data and an unresolved challenge. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 470, 2972-2981.	4.4	99
24	Transiting Exoplanet Studies and Community Targets for <i>JWST</i>'s Early Release Science Program. <i>Publications of the Astronomical Society of the Pacific</i> , 2016, 128, 094401.	3.1	98
25	On the effects of clouds and hazes in the atmospheres of hot Jupiters: semi-analytical temperature-pressure profiles. <i>Monthly Notices of the Royal Astronomical Society</i> , 2012, 420, 20-36.	4.4	95
26	ATMOSPHERIC RETRIEVAL ANALYSIS OF THE DIRECTLY IMAGED EXOPLANET HR 8799b. <i>Astrophysical Journal</i> , 2013, 778, 97.	4.5	95
27	Spatial Structure and Collisionless Electron Heating in Balmerâ€“dominated Shocks. <i>Astrophysical Journal</i> , 2008, 689, 1089-1104.	4.5	93
28	Balmer-Dominated Shocks: A Concise Review. <i>Publications of the Astronomical Society of Australia</i> , 2010, 27, 23-44.	3.4	93
29	A CLOUDINESS INDEX FOR TRANSITING EXOPLANETS BASED ON THE SODIUM AND POTASSIUM LINES: TENTATIVE EVIDENCE FOR HOTTER ATMOSPHERES BEING LESS CLOUDY AT VISIBLE WAVELENGTHS. <i>Astrophysical Journal Letters</i> , 2016, 826, L16.	8.3	93
30	Revisiting the Phase Curves of WASP-43b: Confronting Re-analyzed Spitzer Data with Cloudy Atmospheres. <i>Astronomical Journal</i> , 2018, 155, 150.	4.7	91
31	Retrieval analysis of 38 WFC3 transmission spectra and resolution of the normalization degeneracy. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 481, 4698-4727.	4.4	89
32	ANALYTICAL MODELS OF EXOPLANETARY ATMOSPHERES. II. RADIATIVE TRANSFER VIA THE TWO-STREAM APPROXIMATION. <i>Astrophysical Journal, Supplement Series</i> , 2014, 215, 4.	7.7	77
33	CARBON DIOXIDE IN EXOPLANETARY ATMOSPHERES: RARELY DOMINANT COMPARED TO CARBON MONOXIDE AND WATER IN HOT, HYDROGEN-DOMINATED ATMOSPHERES. <i>Astrophysical Journal</i> , 2016, 817, 149.	4.5	77
34	HELIOS-K 2.0 Opacity Calculator and Open-source Opacity Database for Exoplanetary Atmospheres. <i>Astrophysical Journal, Supplement Series</i> , 2021, 253, 30.	7.7	74
35	Long-lived planetesimal discs. <i>Monthly Notices of the Royal Astronomical Society</i> , 2010, 401, 867-889.	4.4	72
36	THOR: A NEW AND FLEXIBLE GLOBAL CIRCULATION MODEL TO EXPLORE PLANETARY ATMOSPHERES. <i>Astrophysical Journal</i> , 2016, 829, 115.	4.5	72

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37	Self-luminous and Irradiated Exoplanetary Atmospheres Explored with HELIOS. <i>Astronomical Journal</i> , 2019, 157, 170.	4.7	71
38	Balmer-dominated Shocks Revisited. <i>Astrophysical Journal</i> , 2007, 654, 923-937.	4.5	68
39	ANALYTICAL MODELS OF EXOPLANETARY ATMOSPHERES. III. GASEOUS C-H-O-N CHEMISTRY WITH NINE MOLECULES. <i>Astrophysical Journal</i> , 2016, 829, 104.	4.5	68
40	Gliese 581g as a scaled-up version of Earth: atmospheric circulation simulations. <i>Monthly Notices of the Royal Astronomical Society</i> , 2011, 415, 2145-2157.	4.4	66
41	ON THE STABILITY OF SUPER-EARTH ATMOSPHERES. <i>Astrophysical Journal</i> , 2012, 754, 60.	4.5	66
42	Optical properties of potential condensates in exoplanetary atmospheres. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 475, 94-107.	4.4	66
43	Three-dimensional Circulation Driving Chemical Disequilibrium in WASP-43b. <i>Astrophysical Journal</i> , 2018, 869, 107.	4.5	64
44	Supervised machine learning for analysing spectra of exoplanetary atmospheres. <i>Nature Astronomy</i> , 2018, 2, 719-724.	10.1	61
45	Optical phase curves as diagnostics for aerosol composition in exoplanetary atmospheres. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 457, 3420-3429.	4.4	60
46	MAGNETOHYDRODYNAMIC SHALLOW WATER WAVES: LINEAR ANALYSIS. <i>Astrophysical Journal</i> , 2009, 703, 1819-1831.	4.5	55
47	A NON-ISOTHERMAL THEORY FOR INTERPRETING SODIUM LINES IN TRANSMISSION SPECTRA OF EXOPLANETS. <i>Astrophysical Journal Letters</i> , 2015, 803, L9.	8.3	55
48	ANALYTICAL MODELS OF EXOPLANETARY ATMOSPHERES. I. ATMOSPHERIC DYNAMICS VIA THE SHALLOW WATER SYSTEM. <i>Astrophysical Journal, Supplement Series</i> , 2014, 213, 27.	7.7	54
49	Helios-r2: A New Bayesian, Open-source Retrieval Model for Brown Dwarfs and Exoplanet Atmospheres. <i>Astrophysical Journal</i> , 2020, 890, 174.	4.5	54
50	Vortices as nurseries for planetesimal formation in protoplanetary discs. <i>Monthly Notices of the Royal Astronomical Society</i> , 2010, 408, 1476-1493.	4.4	53
51	ON THE EXISTENCE OF SHOCKS IN IRRADIATED EXOPLANETARY ATMOSPHERES. <i>Astrophysical Journal Letters</i> , 2012, 761, L1.	8.3	53
52	THE DESTRUCTION OF THE CIRCUMSTELLAR RING OF SN 1987A. <i>Astrophysical Journal Letters</i> , 2015, 806, L19.	8.3	51
53	Transit detection of the long-period volatile-rich super-Earth $\hat{\nu}^2$ Lupi d with CHEOPS. <i>Nature Astronomy</i> , 2021, 5, 775-787.	10.1	51
54	Toward Consistent Modeling of Atmospheric Chemistry and Dynamics in Exoplanets: Validation and Generalization of the Chemical Relaxation Method. <i>Astrophysical Journal</i> , 2018, 862, 31.	4.5	50

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55	Retrieval Analysis of the Emission Spectrum of WASP-12b: Sensitivity of Outcomes to Prior Assumptions and Implications for Formation History. <i>Astrophysical Journal Letters</i> , 2017, 847, L3.	8.3	49
56	Shear-driven instabilities and shocks in the atmospheres of hot Jupiters. <i>Astronomy and Astrophysics</i> , 2016, 591, A144.	5.1	44
57	Exploring the Atmospheric Dynamics of the Extreme Ultrahot Jupiter KELT-9b Using TESS Photometry. <i>Astronomical Journal</i> , 2020, 160, 88.	4.7	44
58	Combining low- to high-resolution transit spectroscopy of HD 189733b. <i>Astronomy and Astrophysics</i> , 2018, 612, A53.	5.1	42
59	ATMOSPHERIC CHEMISTRY FOR ASTROPHYSICISTS: A SELF-CONSISTENT FORMALISM AND ANALYTICAL SOLUTIONS FOR ARBITRARY C/O. <i>Astrophysical Journal</i> , 2016, 816, 96.	4.5	41
60	High-resolution transmission spectroscopy of MASCARA-2 b with EXPRES. <i>Astronomy and Astrophysics</i> , 2020, 641, A120.	5.1	41
61	Visible-light Phase Curves from the Second Year of the TESS Primary Mission. <i>Astronomical Journal</i> , 2021, 162, 127.	4.7	40
62	Titanium oxide and chemical inhomogeneity in the atmosphere of the exoplanet WASP-189 b. <i>Nature Astronomy</i> , 2022, 6, 449-457.	10.1	40
63	An Integral View of Fast Shocks Around Supernova 1006. <i>Science</i> , 2013, 340, 45-48.	12.6	39
64	A Comparative Study of Atmospheric Chemistry with VULCAN. <i>Astrophysical Journal</i> , 2021, 923, 264.	4.5	39
65	THE INFLUENCE OF ATMOSPHERIC SCATTERING AND ABSORPTION ON OHMIC DISSIPATION IN HOT JUPITERS. <i>Astrophysical Journal Letters</i> , 2012, 748, L17.	8.3	38
66	<i>HST</i> -COS OBSERVATIONS OF HYDROGEN, HELIUM, CARBON, AND NITROGEN EMISSION FROM THE SN 1987A REVERSE SHOCK. <i>Astrophysical Journal</i> , 2011, 743, 186.	4.5	35
67	RAMAN SCATTERING BY MOLECULAR HYDROGEN AND NITROGEN IN EXOPLANETARY ATMOSPHERES. <i>Astrophysical Journal</i> , 2016, 832, 30.	4.5	34
68	The language of exoplanet ranking metrics needs to change. <i>Nature Astronomy</i> , 2017, 1, .	10.1	34
69	HIGH RESOLUTION TRANSMISSION SPECTROSCOPY AS A DIAGNOSTIC FOR JOVIAN EXOPLANET ATMOSPHERES: CONSTRAINTS FROM THEORETICAL MODELS. <i>Astrophysical Journal</i> , 2014, 795, 24.	4.5	33
70	Interpreting High-resolution Spectroscopy of Exoplanets using Cross-correlations and Supervised Machine Learning. <i>Astronomical Journal</i> , 2020, 159, 192.	4.7	33
71	The Transition Zone in Balmer-dominated Shocks. <i>Astrophysical Journal</i> , 2007, 668, 275-284.	4.5	32
72	CONSTRAINING THE ATMOSPHERIC COMPOSITION OF THE DAY-NIGHT TERMINATORS OF HD 189733b: ATMOSPHERIC RETRIEVAL WITH AEROSOLS. <i>Astrophysical Journal</i> , 2014, 789, 14.	4.5	32

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73	Analytical Models of Exoplanetary Atmospheres. IV. Improved Two-stream Radiative Transfer for the Treatment of Aerosols. <i>Astrophysical Journal, Supplement Series</i> , 2017, 232, 20.	7.7	32
74	Debris discs around M stars: non-existence versus non-detection. <i>Monthly Notices of the Royal Astronomical Society</i> , 2013, 432, 2562-2572.	4.4	31
75	Observing Supernova 1987A with the Refurbished Hubble Space Telescope. <i>Science</i> , 2010, 329, 1624-1627.	12.6	30
76	A pair of sub-Neptunes transiting the bright K-dwarf TOI-1064 characterized with CHEOPS. <i>Monthly Notices of the Royal Astronomical Society</i> , 2022, 511, 1043-1071.	4.4	30
77	THOR 2.0: Major Improvements to the Open-source General Circulation Model. <i>Astrophysical Journal, Supplement Series</i> , 2020, 248, 30.	7.7	29
78	Excitation and charge transfer in H-H ⁺ collisions at 5-80 eV and application to astrophysical shocks. <i>Monthly Notices of the Royal Astronomical Society</i> , 2012, 422, 2357-2371.	4.4	28
79	Outstanding Challenges of Exoplanet Atmospheric Retrievals. <i>Space Science Reviews</i> , 2020, 216, 1.	8.1	28
80	Evolution of the Reverse Shock Emission from SNR 1987A. <i>Astrophysical Journal</i> , 2006, 644, 959-970.	4.5	27
81	PLANETESIMAL DISK MICROLENSING. <i>Astrophysical Journal</i> , 2009, 707, 621-631.	4.5	26
82	The Reverse Shock of SNR 1987A at 18 Years after Outburst. <i>Astrophysical Journal</i> , 2005, 635, L41-L44.	4.5	25
83	Community Targets of JWST's Early Release Science Program: Evaluation of WASP-63b. <i>Astronomical Journal</i> , 2018, 156, 103.	4.7	25
84	How Much Information Does the Sodium Doublet Encode? Retrieval Analysis of Non-LTE Sodium Lines at Low and High Spectral Resolutions. <i>Astrophysical Journal</i> , 2019, 881, 25.	4.5	23
85	Supervised Machine Learning for Intercomparison of Model Grids of Brown Dwarfs: Application to GJ 570D and the Epsilon Indi B Binary System. <i>Astronomical Journal</i> , 2020, 159, 6.	4.7	22
86	Probing Elemental Abundances in SNR 1987A using XMM-Newton. <i>Astrophysical Journal</i> , 2008, 676, 361-370.	4.5	21
87	TOI-2109: An Ultrahot Gas Giant on a 16 hr Orbit. <i>Astronomical Journal</i> , 2021, 162, 256.	4.7	21
88	CHEOPS geometric albedo of the hot Jupiter HD 209458 b. <i>Astronomy and Astrophysics</i> , 2022, 659, L4.	5.1	20
89	Secondary Atmospheres on HD 219134 b and c. <i>Astrophysical Journal</i> , 2018, 853, 64.	4.5	18
90	Analytical Models of Exoplanetary Atmospheres. VI. Full Solutions for Improved Two-stream Radiative Transfer, Including Direct Stellar Beam. <i>Astrophysical Journal, Supplement Series</i> , 2018, 237, 29.	7.7	17

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91	Orbital and spectral analysis of the benchmark brown dwarf HD 4747B. <i>Astronomy and Astrophysics</i> , 2019, 631, A107.	5.1	17
92	The lifetimes of planetary debris discs around white dwarfs. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 496, 2292-2308.	4.4	17
93	Closed-form ab initio solutions of geometric albedos and reflected light phase curves of exoplanets. <i>Nature Astronomy</i> , 2021, 5, 1001-1008.	10.1	17
94	Information Content of JWST NIRSpec Transmission Spectra of Warm Neptunes. <i>Astronomical Journal</i> , 2020, 160, 15.	4.7	16
95	Retrieval Study of Brown Dwarfs across the L-T Sequence. <i>Astrophysical Journal</i> , 2022, 930, 136.	4.5	14
96	Balmer Filaments in Tycho's Supernova Remnant: An Interplay between Cosmic-ray and Broad-neutral Precursors. <i>Astrophysical Journal</i> , 2017, 846, 167.	4.5	13
97	MAPPING HIGH-VELOCITY H I AND Ly I EMISSION FROM SUPERNOVA 1987A. <i>Astrophysical Journal Letters</i> , 2015, 801, L16.	8.3	12
98	Lithologic Controls on Silicate Weathering Regimes of Temperate Planets. <i>Planetary Science Journal</i> , 2021, 2, 49.	3.6	10
99	Jupiter as an Exoplanet: Insights from Cassini Phase Curves. <i>Astrophysical Journal Letters</i> , 2021, 909, L20.	8.3	9
100	A CHEOPS white dwarf transit search. <i>Astronomy and Astrophysics</i> , 2021, 651, L12.	5.1	9
101	Estimating the mass of the debris disc in HD 69830. <i>Monthly Notices of the Royal Astronomical Society</i> , 2011, 415, 3365-3368.	4.4	8
102	On physical interpretations of the reference transit radius of gas-giant exoplanets. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 490, 3378-3383.	4.4	8
103	Analytical Models of Exoplanetary Atmospheres. V. Non-gray Thermal Structure with Coherent Scattering. <i>Astrophysical Journal</i> , 2018, 858, 1.	4.5	7
104	What Does "Metallicity" Mean When Interpreting Spectra of Exoplanetary Atmospheres?. <i>Research Notes of the AAS</i> , 2018, 2, 128.	0.7	7
105	The THOR+HELIOS general circulation model: multiwavelength radiative transfer with accurate scattering by clouds/hazes. <i>Monthly Notices of the Royal Astronomical Society</i> , 2022, 512, 3759-3787.	4.4	7
106	The Nature of Scientific Proof in the Age of Simulations. <i>American Scientist</i> , 2014, 102, 174.	0.1	6
107	The science of EChO. <i>Proceedings of the International Astronomical Union</i> , 2010, 6, 359-370.	0.0	5
108	Dust Echoes from the Ambient Medium of Gamma-Ray Bursts. <i>Astrophysical Journal</i> , 2007, 662, 1119-1128.	4.5	4

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109	Chemical diversity of the atmospheres and interiors of sub-Neptunes: a case study of GJ 436 b. Monthly Notices of the Royal Astronomical Society, 2022, 513, 4015-4036.	4.4	4
110	The Study of Climate on Alien Worlds. American Scientist, 2012, 100, 334.	0.1	3
111	The Next Great Exoplanet Hunt. American Scientist, 2015, 103, 196.	0.1	2
112	The Reverse Shock of SNR 1987A. AIP Conference Proceedings, 2007, , .	0.4	1
113	How Does the Shape of the Stellar Spectrum Affect the Raman Scattering Features in the Albedo of Exoplanets?. Astrophysical Journal, 2017, 846, 91.	4.5	1
114	Radiative Transfer for Exoplanet Atmospheres. , 2018, , 2137-2152.		1
115	General Circulation Model Errors Are Variable across Exoclimate Parameter Spaces. Astrophysical Journal, 2021, 923, 39.	4.5	1
116	An Integral View of Balmer-dominated Shocks in Supernova Remnants. Proceedings of the International Astronomical Union, 2013, 9, 165-169.	0.0	0
117	Radiative Transfer for Exoplanet Atmospheres. , 2017, , 1-16.		0
118	Balmer-dominated shocks in Tycho's SNR: omnipresence of CRs. Proceedings of the International Astronomical Union, 2017, 12, 248-253.	0.0	0
119	A New Window on Alien Atmospheres. American Scientist, 2017, 105, 86.	0.1	0