

# Kevin Heng

## List of Publications by Year in descending order

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Version: 2024-02-01

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 pair of sub-Neptunes transiting the bright K-dwarf TOI-1064 characterized with <i>CHEOPS</i> . <i>Monthly Notices of the Royal Astronomical Society</i> , 2022, 511, 1043-1071.	4.4	30
2	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
3	The <i>THOR+HELIOS</i> 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
4	<i>CHEOPS</i> geometric albedo of the hot Jupiter HD 209458 b. <i>Astronomy and Astrophysics</i> , 2022, 659, L4.	5.1	20
5	Chemical diversity of the atmospheres and interiors of sub-Neptunes: a case study of GJ 436 b. <i>Monthly Notices of the Royal Astronomical Society</i> , 2022, 513, 4015-4036.	4.4	4
6	Retrieval Study of Brown Dwarfs across the L-T Sequence. <i>Astrophysical Journal</i> , 2022, 930, 136.	4.5	14
7	Lithologic Controls on Silicate Weathering Regimes of Temperate Planets. <i>Planetary Science Journal</i> , 2021, 2, 49.	3.6	10
8	Jupiter as an Exoplanet: Insights from Cassini Phase Curves. <i>Astrophysical Journal Letters</i> , 2021, 909, L20.	8.3	9
9	<i>HELIOS-K 2.0</i> Opacity Calculator and Open-source Opacity Database for Exoplanetary Atmospheres. <i>Astrophysical Journal, Supplement Series</i> , 2021, 253, 30.	7.7	74
10	Transit detection of the long-period volatile-rich super-Earth $\hat{1}/2$ Lupi d with <i>CHEOPS</i> . <i>Nature Astronomy</i> , 2021, 5, 775-787.	10.1	51
11	A <i>CHEOPS</i> white dwarf transit search. <i>Astronomy and Astrophysics</i> , 2021, 651, L12.	5.1	9
12	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
13	Visible-light Phase Curves from the Second Year of the TESS Primary Mission. <i>Astronomical Journal</i> , 2021, 162, 127.	4.7	40
14	TOI-2109: An Ultrahot Gas Giant on a 16 hr Orbit. <i>Astronomical Journal</i> , 2021, 162, 256.	4.7	21
15	General Circulation Model Errors Are Variable across Exoclimate Parameter Spaces. <i>Astrophysical Journal</i> , 2021, 923, 39.	4.5	1
16	A Comparative Study of Atmospheric Chemistry with <i>VULCAN</i> . <i>Astrophysical Journal</i> , 2021, 923, 264.	4.5	39
17	A giant planet candidate transiting a white dwarf. <i>Nature</i> , 2020, 585, 363-367.	27.8	111
18	<i>Helios-r2</i> : A New Bayesian, Open-source Retrieval Model for Brown Dwarfs and Exoplanet Atmospheres. <i>Astrophysical Journal</i> , 2020, 890, 174.	4.5	54

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19	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
20	Outstanding Challenges of Exoplanet Atmospheric Retrievals. <i>Space Science Reviews</i> , 2020, 216, 1.	8.1	28
21	High-resolution transmission spectroscopy of MASCARA-2 b with EXPRES. <i>Astronomy and Astrophysics</i> , 2020, 641, A120.	5.1	41
22	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
23	Interpreting High-resolution Spectroscopy of Exoplanets using Cross-correlations and Supervised Machine Learning. <i>Astronomical Journal</i> , 2020, 159, 192.	4.7	33
24	Information Content of JWST NIRSpec Transmission Spectra of Warm Neptunes. <i>Astronomical Journal</i> , 2020, 160, 15.	4.7	16
25	Exploring the Atmospheric Dynamics of the Extreme Ultrahot Jupiter KELT-9b Using TESS Photometry. <i>Astronomical Journal</i> , 2020, 160, 88.	4.7	44
26	THOR 2.0: Major Improvements to the Open-source General Circulation Model. <i>Astrophysical Journal, Supplement Series</i> , 2020, 248, 30.	7.7	29
27	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
28	A spectral survey of an ultra-hot Jupiter. <i>Astronomy and Astrophysics</i> , 2019, 627, A165.	5.1	145
29	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
30	Self-luminous and Irradiated Exoplanetary Atmospheres Explored with HELIOS. <i>Astronomical Journal</i> , 2019, 157, 170.	4.7	71
31	Orbital and spectral analysis of the benchmark brown dwarf HD 4747B. <i>Astronomy and Astrophysics</i> , 2019, 631, A107.	5.1	17
32	Optical properties of potential condensates in exoplanetary atmospheres. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 475, 94-107.	4.4	66
33	Analytical Models of Exoplanetary Atmospheres. V. Non-gray Thermal Structure with Coherent Scattering. <i>Astrophysical Journal</i> , 2018, 858, 1.	4.5	7
34	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
35	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
36	Radiative Transfer for Exoplanet Atmospheres. , 2018, , 2137-2152.		1

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37	Three-dimensional Circulation Driving Chemical Disequilibrium in WASP-43b. <i>Astrophysical Journal</i> , 2018, 869, 107.	4.5	64
38	A Framework for Prioritizing the <i>TESS</i> Planetary Candidates Most Amenable to Atmospheric Characterization. <i>Publications of the Astronomical Society of the Pacific</i> , 2018, 130, 114401.	3.1	314
39	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
40	Combining low- to high-resolution transit spectroscopy of HD 189733b. <i>Astronomy and Astrophysics</i> , 2018, 612, A53.	5.1	42
41	The Peculiar Atmospheric Chemistry of KELT-9b. <i>Astrophysical Journal</i> , 2018, 863, 183.	4.5	107
42	Community Targets of JWST's Early Release Science Program: Evaluation of WASP-63b. <i>Astronomical Journal</i> , 2018, 156, 103.	4.7	25
43	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
44	Secondary Atmospheres on HD 219134 b and c. <i>Astrophysical Journal</i> , 2018, 853, 64.	4.5	18
45	Supervised machine learning for analysing spectra of exoplanetary atmospheres. <i>Nature Astronomy</i> , 2018, 2, 719-724.	10.1	61
46	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
47	Atomic iron and titanium in the atmosphere of the exoplanet KELT-9b. <i>Nature</i> , 2018, 560, 453-455.	27.8	179
48	What Does "Metallicity" Mean When Interpreting Spectra of Exoplanetary Atmospheres?. <i>Research Notes of the AAS</i> , 2018, 2, 128.	0.7	7
49	VULCAN: An Open-source, Validated Chemical Kinetics Python Code for Exoplanetary Atmospheres. <i>Astrophysical Journal, Supplement Series</i> , 2017, 228, 20.	7.7	135
50	HELIOS: AN OPEN-SOURCE, GPU-ACCELERATED RADIATIVE TRANSFER CODE FOR SELF-CONSISTENT EXOPLANETARY ATMOSPHERES. <i>Astronomical Journal</i> , 2017, 153, 56.	4.7	128
51	The language of exoplanet ranking metrics needs to change. <i>Nature Astronomy</i> , 2017, 1, .	10.1	34
52	A generalized Bayesian inference method for constraining the interiors of super Earths and sub-Neptunes. <i>Astronomy and Astrophysics</i> , 2017, 597, A37.	5.1	121
53	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
54	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

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55	Radiative Transfer for Exoplanet Atmospheres. , 2017, , 1-16.		0
56	The theory of transmission spectra revisited: a semi-analytical method for interpreting WFC3 data and an unresolved challenge. Monthly Notices of the Royal Astronomical Society, 2017, 470, 2972-2981.	4.4	99
57	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
58	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
59	HELIOSâ€“RETRIEVAL: An Open-source, Nested Sampling Atmospheric Retrieval Code; Application to the HR 8799 Exoplanets and Inferred Constraints for Planet Formation. Astronomical Journal, 2017, 154, 91.	4.7	101
60	Retrieval Analysis of the Emission Spectrum of WASP-12b: Sensitivity of Outcomes to Prior Assumptions and Implications for Formation History. Astrophysical Journal Letters, 2017, 847, L3.	8.3	49
61	Balmer-dominated shocks in Tychoâ€™s SNR: omnipresence of CRs. Proceedings of the International Astronomical Union, 2017, 12, 248-253.	0.0	0
62	A New Window on Alien Atmospheres. American Scientist, 2017, 105, 86.	0.1	0
63	A CLOUDINESS INDEX FOR TRANSITING EXOPLANETS BASED ON THE SODIUM AND POTASSIUM LINES: TENTATIVE EVIDENCE FOR HOTTER ATMOSPHERES BEING LESS CLOUDY AT VISIBLE WAVELENGTHS. Astrophysical Journal Letters, 2016, 826, L16.	8.3	93
64	THOR: A NEW AND FLEXIBLE GLOBAL CIRCULATION MODEL TO EXPLORE PLANETARY ATMOSPHERES. Astrophysical Journal, 2016, 829, 115.	4.5	72
65	Shear-driven instabilities and shocks in the atmospheres of hot Jupiters. Astronomy and Astrophysics, 2016, 591, A144.	5.1	44
66	RAMAN SCATTERING BY MOLECULAR HYDROGEN AND NITROGEN IN EXOPLANETARY ATMOSPHERES. Astrophysical Journal, 2016, 832, 30.	4.5	34
67	A map of the large dayâ€“night temperature gradient of a super-Earth exoplanet. Nature, 2016, 532, 207-209.	27.8	225
68	ANALYTICAL MODELS OF EXOPLANETARY ATMOSPHERES. III. GASEOUS Câ€“Hâ€“Oâ€“N CHEMISTRY WITH NINE MOLECULES. Astrophysical Journal, 2016, 829, 104.	4.5	68
69	Transiting Exoplanet Studies and Community Targets for <i>JWST</i> 's Early Release Science Program. Publications of the Astronomical Society of the Pacific, 2016, 128, 094401.	3.1	98
70	CARBON DIOXIDE IN EXOPLANETARY ATMOSPHERES: RARELY DOMINANT COMPARED TO CARBON MONOXIDE AND WATER IN HOT, HYDROGEN-DOMINATED ATMOSPHERES. Astrophysical Journal, 2016, 817, 149.	4.5	77
71	ATMOSPHERIC CHEMISTRY FOR ASTROPHYSICISTS: A SELF-CONSISTENT FORMALISM AND ANALYTICAL SOLUTIONS FOR ARBITRARY C/O. Astrophysical Journal, 2016, 816, 96.	4.5	41
72	Optical phase curves as diagnostics for aerosol composition in exoplanetary atmospheres. Monthly Notices of the Royal Astronomical Society, 2016, 457, 3420-3429.	4.4	60

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73	<a href="#">HELIOS-K</a> : AN ULTRAFAST, OPEN-SOURCE OPACITY CALCULATOR FOR RADIATIVE TRANSFER. <i>Astrophysical Journal</i> , 2015, 808, 182.	4.5	129
74	Can we constrain the interior structure of rocky exoplanets from mass and radius measurements?. <i>Astronomy and Astrophysics</i> , 2015, 577, A83.	5.1	199
75	MAPPING HIGH-VELOCITY H $\alpha$ AND Ly $\alpha$ EMISSION FROM SUPERNOVA 1987A. <i>Astrophysical Journal Letters</i> , 2015, 801, L16.	8.3	12
76	Atmospheric Dynamics of Hot Exoplanets. <i>Annual Review of Earth and Planetary Sciences</i> , 2015, 43, 509-540.	11.0	149
77	THE DESTRUCTION OF THE CIRCUMSTELLAR RING OF SN 1987A. <i>Astrophysical Journal Letters</i> , 2015, 806, L19.	8.3	51
78	A NON-ISOTHERMAL THEORY FOR INTERPRETING SODIUM LINES IN TRANSMISSION SPECTRA OF EXOPLANETS. <i>Astrophysical Journal Letters</i> , 2015, 803, L9.	8.3	55
79	The Next Great Exoplanet Hunt. <i>American Scientist</i> , 2015, 103, 196.	0.1	2
80	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
81	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
82	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
83	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
84	The Nature of Scientific Proof in the Age of Simulations. <i>American Scientist</i> , 2014, 102, 174.	0.1	6
85	THE DEEP BLUE COLOR OF HD 189733b: ALBEDO MEASUREMENTS WITH <i>HUBBLE SPACE TELESCOPE</i> /SPACE TELESCOPE IMAGING SPECTROGRAPH AT VISIBLE WAVELENGTHS. <i>Astrophysical Journal Letters</i> , 2013, 772, L16.	8.3	138
86	An Integral View of Fast Shocks Around Supernova 1006. <i>Science</i> , 2013, 340, 45-48.	12.6	39
87	UNDERSTANDING TRENDS ASSOCIATED WITH CLOUDS IN IRRADIATED EXOPLANETS. <i>Astrophysical Journal</i> , 2013, 777, 100.	4.5	135
88	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
89	INFERENCE OF INHOMOGENEOUS CLOUDS IN AN EXOPLANET ATMOSPHERE. <i>Astrophysical Journal Letters</i> , 2013, 776, L25.	8.3	250
90	ATMOSPHERIC RETRIEVAL ANALYSIS OF THE DIRECTLY IMAGED EXOPLANET HR 8799b. <i>Astrophysical Journal</i> , 2013, 778, 97.	4.5	95

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91	An Integral View of Balmer-dominated Shocks in Supernova Remnants. Proceedings of the International Astronomical Union, 2013, 9, 165-169.	0.0	0
92	ON THE EXISTENCE OF SHOCKS IN IRRADIATED EXOPLANETARY ATMOSPHERES. Astrophysical Journal Letters, 2012, 761, L1.	8.3	53
93	ON THE STABILITY OF SUPER-EARTH ATMOSPHERES. Astrophysical Journal, 2012, 754, 60.	4.5	66
94	THE EFFECTS OF IRRADIATION ON HOT JOVIAN ATMOSPHERES: HEAT REDISTRIBUTION AND ENERGY DISSIPATION. Astrophysical Journal, 2012, 751, 59.	4.5	126
95	On the effects of clouds and hazes in the atmospheres of hot Jupiters: semi-analytical temperature-pressure profiles. Monthly Notices of the Royal Astronomical Society, 2012, 420, 20-36.	4.4	95
96	Excitation and charge transfer in H-H <sup>+</sup> collisions at 5-80 eV and application to astrophysical shocks. Monthly Notices of the Royal Astronomical Society, 2012, 422, 2357-2371.	4.4	28
97	THE INFLUENCE OF ATMOSPHERIC SCATTERING AND ABSORPTION ON OHMIC DISSIPATION IN HOT JUPITERS. Astrophysical Journal Letters, 2012, 748, L17.	8.3	38
98	The Study of Climate on Alien Worlds. American Scientist, 2012, 100, 334.	0.1	3
99	THE DEPENDENCE OF BROWN DWARF RADII ON ATMOSPHERIC METALLICITY AND CLOUDS: THEORY AND COMPARISON WITH OBSERVATIONS. Astrophysical Journal, 2011, 736, 47.	4.5	127
100	<i>HST</i> -COS OBSERVATIONS OF HYDROGEN, HELIUM, CARBON, AND NITROGEN EMISSION FROM THE SN 1987A REVERSE SHOCK. Astrophysical Journal, 2011, 743, 186.	4.5	35
101	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
102	Gliese 581g as a scaled-up version of Earth: atmospheric circulation simulations. Monthly Notices of the Royal Astronomical Society, 2011, 415, 2145-2157.	4.4	66
103	Estimating the mass of the debris disc in HD 69830. Monthly Notices of the Royal Astronomical Society, 2011, 415, 3365-3368.	4.4	8
104	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
105	The science of EChO. Proceedings of the International Astronomical Union, 2010, 6, 359-370.	0.0	5
106	Balmer-Dominated Shocks: A Concise Review. Publications of the Astronomical Society of Australia, 2010, 27, 23-44.	3.4	93
107	Vortices as nurseries for planetesimal formation in protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2010, 408, 1476-1493.	4.4	53
108	Long-lived planetesimal discs. Monthly Notices of the Royal Astronomical Society, 2010, 401, 867-889.	4.4	72

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109	Observing Supernova 1987A with the Refurbished Hubble Space Telescope. <i>Science</i> , 2010, 329, 1624-1627.	12.6	30
110	PLANETESIMAL DISK MICROLENSING. <i>Astrophysical Journal</i> , 2009, 707, 621-631.	4.5	26
111	MAGNETOHYDRODYNAMIC SHALLOW WATER WAVES: LINEAR ANALYSIS. <i>Astrophysical Journal</i> , 2009, 703, 1819-1831.	4.5	55
112	Probing Elemental Abundances in SNR 1987A using XMM-Newton. <i>Astrophysical Journal</i> , 2008, 676, 361-370.	4.5	21
113	Spatial Structure and Collisionless Electron Heating in Balmer-dominated Shocks. <i>Astrophysical Journal</i> , 2008, 689, 1089-1104.	4.5	93
114	The Reverse Shock of SNR 1987A. <i>AIP Conference Proceedings</i> , 2007, , .	0.4	1
115	Balmer-dominated Shocks Revisited. <i>Astrophysical Journal</i> , 2007, 654, 923-937.	4.5	68
116	Dust Echoes from the Ambient Medium of Gamma-Ray Bursts. <i>Astrophysical Journal</i> , 2007, 662, 1119-1128.	4.5	4
117	The Transition Zone in Balmer-dominated Shocks. <i>Astrophysical Journal</i> , 2007, 668, 275-284.	4.5	32
118	Evolution of the Reverse Shock Emission from SNR 1987A. <i>Astrophysical Journal</i> , 2006, 644, 959-970.	4.5	27
119	The Reverse Shock of SNR 1987A at 18 Years after Outburst. <i>Astrophysical Journal</i> , 2005, 635, L41-L44.	4.5	25