

Nikku Madhusudhan

List of Publications by Year in descending order

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112
papers

10,143
citations

26630

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times ranked

3539
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#	ARTICLE	IF	CITATIONS
1	INFRARED TRANSMISSION SPECTROSCOPY OF THE EXOPLANETS HD 209458b AND XO-1b USING THE WIDE FIELD CAMERA-3 ON THE HUBBLE SPACE TELESCOPE. <i>Astrophysical Journal</i> , 2013, 774, 95.	4.5	409
2	C/O RATIO AS A DIMENSION FOR CHARACTERIZING EXOPLANETARY ATMOSPHERES. <i>Astrophysical Journal</i> , 2012, 758, 36.	4.5	338
3	A PRECISE WATER ABUNDANCE MEASUREMENT FOR THE HOT JUPITER WASP-43b. <i>Astrophysical Journal Letters</i> , 2014, 793, L27.	8.3	297
4	A high C/O ratio and weak thermal inversion in the atmosphere of exoplanet WASP-12b. <i>Nature</i> , 2011, 469, 64-67.	27.8	274
5	Thermal structure of an exoplanet atmosphere from phase-resolved emission spectroscopy. <i>Science</i> , 2014, 346, 838-841.	12.6	266
6	INFERENCE OF INHOMOGENEOUS CLOUDS IN AN EXOPLANET ATMOSPHERE. <i>Astrophysical Journal Letters</i> , 2013, 776, L25.	8.3	250
7	Possible thermochemical disequilibrium in the atmosphere of the exoplanet GJ 436b. <i>Nature</i> , 2010, 464, 1161-1164.	27.8	242
8	Water vapour absorption in the clear atmosphere of a Neptune-sized exoplanet. <i>Nature</i> , 2014, 513, 526-529.	27.8	238
9	A COMBINED SUBARU/VLT/MMT 1-5 μ m STUDY OF PLANETS ORBITING HR 8799: IMPLICATIONS FOR ATMOSPHERIC PROPERTIES, MASSES, AND FORMATION. <i>Astrophysical Journal</i> , 2011, 729, 128.	4.5	233
10	A map of the large day-night temperature gradient of a super-Earth exoplanet. <i>Nature</i> , 2016, 532, 207-209.	27.8	225
11	A DETECTION OF WATER IN THE TRANSMISSION SPECTRUM OF THE HOT JUPITER WASP-12b AND IMPLICATIONS FOR ITS ATMOSPHERIC COMPOSITION. <i>Astrophysical Journal</i> , 2015, 814, 66.	4.5	212
12	TOWARD CHEMICAL CONSTRAINTS ON HOT JUPITER MIGRATION. <i>Astrophysical Journal Letters</i> , 2014, 794, L12.	8.3	209
13	Exoplanetary Atmospheres: Key Insights, Challenges, and Prospects. <i>Annual Review of Astronomy and Astrophysics</i> , 2019, 57, 617-663.	24.3	207
14	HD 209458b in new light: evidence of nitrogen chemistry, patchy clouds and sub-solar water. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 469, 1979-1996.	4.4	186
15	SPECTROSCOPIC EVIDENCE FOR A TEMPERATURE INVERSION IN THE DAYSIDE ATMOSPHERE OF HOT JUPITER WASP-33b. <i>Astrophysical Journal</i> , 2015, 806, 146.	4.5	177
16	Exoplanetary Atmospheres—Chemistry, Formation Conditions, and Habitability. <i>Space Science Reviews</i> , 2016, 205, 285-348.	8.1	172
17	A POSSIBLE CARBON-RICH INTERIOR IN SUPER-EARTH 55 Cancri e. <i>Astrophysical Journal Letters</i> , 2012, 759, L40.	8.3	168
18	MODEL ATMOSPHERES FOR MASSIVE GAS GIANTS WITH THICK CLOUDS: APPLICATION TO THE HR 8799 PLANETS AND PREDICTIONS FOR FUTURE DETECTIONS. <i>Astrophysical Journal</i> , 2011, 737, 34.	4.5	163

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19	TRANSMISSION SPECTROSCOPY OF THE HOT JUPITER WASP-12b FROM 0.7 TO 5 μ m. <i>Astronomical Journal</i> , 2014, 147, 161.	4.7	154
20	Chemical enrichment of giant planets and discs due to pebble drift. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 469, 3994-4011.	4.4	148
21	NO THERMAL INVERSION AND A SOLAR WATER ABUNDANCE FOR THE HOT JUPITER HD 209458B FROM HST/WFC3 SPECTROSCOPY. <i>Astronomical Journal</i> , 2016, 152, 203.	4.7	144
22	H ₂ O abundances and cloud properties in ten hot giant exoplanets. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 482, 1485-1498.	4.4	141
23	CARBON-RICH GIANT PLANETS: ATMOSPHERIC CHEMISTRY, THERMAL INVERSIONS, SPECTRA, AND FORMATION CONDITIONS. <i>Astrophysical Journal</i> , 2011, 743, 191.	4.5	137
24	H ₂ O ABUNDANCES IN THE ATMOSPHERES OF THREE HOT JUPITERS. <i>Astrophysical Journal Letters</i> , 2014, 791, L9.	8.3	134
25	Atmospheric signatures of giant exoplanet formation by pebble accretion. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 469, 4102-4115.	4.4	134
26	EXOPLANET TRANSIT SPECTROSCOPY USING WFC3: WASP-12 b, WASP-17 b, AND WASP-19 b. <i>Astrophysical Journal</i> , 2013, 779, 128.	4.5	130
27	Detection of titanium oxide in the atmosphere of a hot Jupiter. <i>Nature</i> , 2017, 549, 238-241.	27.8	129
28	DECIPHERING THE ATMOSPHERIC COMPOSITION OF WASP-12b: A COMPREHENSIVE ANALYSIS OF ITS DAYSIDE EMISSION. <i>Astrophysical Journal</i> , 2014, 791, 36.	4.5	128
29	Variability in the super-Earth 55 Cnc. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 455, 2018-2027.	4.4	126
30	Mass-Metallicity Trends in Transiting Exoplanets from Atmospheric Abundances of H ₂ O, Na, and K. <i>Astrophysical Journal Letters</i> , 2019, 887, L20.	8.3	125
31	THE HIGH ALBEDO OF THE HOT JUPITER KEPLER-7 b. <i>Astrophysical Journal Letters</i> , 2011, 735, L12.	8.3	123
32	A SPITZER TRANSMISSION SPECTRUM FOR THE EXOPLANET GJ 436b, EVIDENCE FOR STELLAR VARIABILITY, AND CONSTRAINTS ON DAYSIDE FLUX VARIATIONS. <i>Astrophysical Journal</i> , 2011, 735, 27.	4.5	115
33	genesis: new self-consistent models of exoplanetary spectra. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 472, 2334-2355.	4.4	106
34	Evidence for a Dayside Thermal Inversion and High Metallicity for the Hot Jupiter WASP-18b. <i>Astrophysical Journal Letters</i> , 2017, 850, L32.	8.3	104
35	STUDYING THE ATMOSPHERE OF THE EXOPLANET HAT-P-7b VIA SECONDARY ECLIPSE MEASUREMENTS WITH EPOXI, SPITZER, AND KEPLER. <i>Astrophysical Journal</i> , 2010, 710, 97-104.	4.5	103
36	The Transiting Exoplanet Community Early Release Science Program for JWST. <i>Publications of the Astronomical Society of the Pacific</i> , 2018, 130, 114402.	3.1	100

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37	ANALYTIC MODELS FOR ALBEDOS, PHASE CURVES, AND POLARIZATION OF REFLECTED LIGHT FROM EXOPLANETS. <i>Astrophysical Journal</i> , 2012, 747, 25.	4.5	99
38	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
39	A COMBINED VERY LARGE TELESCOPE AND GEMINI STUDY OF THE ATMOSPHERE OF THE DIRECTLY IMAGED PLANET, $\hat{2}$ PICTORIS b. <i>Astrophysical Journal</i> , 2013, 776, 15.	4.5	95
40	<i>SPITZER</i> OBSERVATIONS OF THE THERMAL EMISSION FROM WASP-43b. <i>Astrophysical Journal</i> , 2014, 781, 116.	4.5	91
41	CHEMISTRY IN AN EVOLVING PROTOPLANETARY DISK: EFFECTS ON TERRESTRIAL PLANET COMPOSITION. <i>Astrophysical Journal</i> , 2014, 787, 81.	4.5	90
42	Statistical Analysis of Hubble/WFC3 Transit Spectroscopy of Extrasolar Planets. <i>Astrophysical Journal Letters</i> , 2017, 847, L22.	8.3	88
43	<i>SPITZER</i> SECONDARY ECLIPSES OF WASP-18b. <i>Astrophysical Journal</i> , 2011, 742, 35.	4.5	85
44	GROUND-BASED TRANSIT SPECTROSCOPY OF THE HOT-JUPITER WASP-19b IN THE NEAR-INFRARED. <i>Astrophysical Journal</i> , 2013, 771, 108.	4.5	80
45	WATER VAPOR IN THE SPECTRUM OF THE EXTRASOLAR PLANET HD 189733b. II. THE ECLIPSE. <i>Astrophysical Journal</i> , 2014, 795, 166.	4.5	80
46	DEEP THERMAL INFRARED IMAGING OF HR 8799 bcde: NEW ATMOSPHERIC CONSTRAINTS AND LIMITS ON A FIFTH PLANET. <i>Astrophysical Journal</i> , 2014, 795, 133.	4.5	80
47	Retrieval of planetary and stellar properties in transmission spectroscopy with Aura. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 480, 5314-5331.	4.4	80
48	THE EMERGENT 1.1-1.7 $\hat{1}$ / ₄ m SPECTRUM OF THE EXOPLANET COROT-2B AS MEASURED USING THE <i>HUBBLE</i> SPACE TELESCOPE. <i>Astrophysical Journal</i> , 2014, 783, 113.	4.5	77
49	WASP-8b: CHARACTERIZATION OF A COOL AND ECCENTRIC EXOPLANET WITH <i>SPITZER</i> . <i>Astrophysical Journal</i> , 2013, 768, 42.	4.5	76
50	Polluted white dwarfs: constraints on the origin and geology of exoplanetary material. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 479, 3814-3841.	4.4	76
51	PLANETESIMAL COMPOSITIONS IN EXOPLANET SYSTEMS. <i>Astrophysical Journal</i> , 2012, 757, 192.	4.5	72
52	Statistical Characterization of Hot Jupiter Atmospheres Using <i>Spitzer</i> 's Secondary Eclipses. <i>Astronomical Journal</i> , 2020, 159, 137.	4.7	72
53	Evidence for Atmospheric Cold-trap Processes in the Noninverted Emission Spectrum of Kepler-13Ab Using HST/WFC3. <i>Astronomical Journal</i> , 2017, 154, 158.	4.7	71
54	Retrieval of exoplanet emission spectra with HyDRA. <i>Monthly Notices of the Royal Astronomical Society</i> , 2018, 474, 271-288.	4.4	71

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55	A 5 $\hat{1}$ / ₄ m IMAGE OF $\hat{1}$ ² PICTORIS b AT A SUB-JUPITER PROJECTED SEPARATION: EVIDENCE FOR A MISALIGNMENT BETWEEN THE PLANET AND THE INNER, WARPED DISK. <i>Astrophysical Journal Letters</i> , 2011, 736, L33.	8.3	70
56	C/O AND O/H RATIOS SUGGEST SOME HOT JUPITERS ORIGINATE BEYOND THE SNOW LINE. <i>Astronomical Journal</i> , 2017, 153, 83.	4.7	70
57	NEBULAR WATER DEPLETION AS THE CAUSE OF JUPITER'S LOW OXYGEN ABUNDANCE. <i>Astrophysical Journal Letters</i> , 2012, 751, L7.	8.3	68
58	ATMOSPHERIC CHARACTERIZATION OF FIVE HOT JUPITERS WITH THE WIDE FIELD CAMERA 3 ON THE HUBBLE SPACE TELESCOPE. <i>Astrophysical Journal</i> , 2014, 785, 148.	4.5	68
59	Detection of the Atmosphere of the 1.6 \hat{A} Exoplanet GJ 1132 b. <i>Astronomical Journal</i> , 2017, 153, 191.	4.7	65
60	INFRARED ECLIPSES OF THE STRONGLY IRRADIATED PLANET WASP-33b, AND OSCILLATIONS OF ITS HOST STAR. <i>Astrophysical Journal</i> , 2012, 754, 106.	4.5	64
61	Signatures of Nitrogen Chemistry in Hot Jupiter Atmospheres. <i>Astrophysical Journal Letters</i> , 2017, 850, L15.	8.3	64
62	On Degeneracies in Retrievals of Exoplanetary Transmission Spectra. <i>Astronomical Journal</i> , 2019, 157, 206.	4.7	62
63	Detection of neutral atomic species in the ultra-hot Jupiter WASP-121b. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 494, 363-377.	4.4	62
64	THE ATMOSPHERES OF THE HOT-JUPITERS KEPLER-5b AND KEPLER-6b OBSERVED DURING OCCULTATIONS WITH WARM-SPITZER AND KEPLER. <i>Astrophysical Journal, Supplement Series</i> , 2011, 197, 11.	7.7	61
65	THERMAL EMISSION OF WASP-14b REVEALED WITH THREE SPITZER ECLIPSES. <i>Astrophysical Journal</i> , 2013, 779, 5.	4.5	61
66	JUPITER WILL BECOME A HOT JUPITER: CONSEQUENCES OF POST-MAIN-SEQUENCE STELLAR EVOLUTION ON GAS GIANT PLANETS. <i>Astrophysical Journal</i> , 2012, 756, 132.	4.5	60
67	Evidence for Multiple Molecular Species in the Hot Jupiter HD 209458b. <i>Astrophysical Journal Letters</i> , 2018, 863, L11.	8.3	60
68	The Interior and Atmosphere of the Habitable-zone Exoplanet K2-18b. <i>Astrophysical Journal Letters</i> , 2020, 891, L7.	8.3	60
69	On the robustness of analysis techniques for molecular detections using high-resolution exoplanet spectroscopy. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 482, 4422-4436.	4.4	57
70	On signatures of clouds in exoplanetary transit spectra. <i>Monthly Notices of the Royal Astronomical Society</i> , 2017, 471, 4355-4373.	4.4	56
71	New avenues for thermal inversions in atmospheres of hot Jupiters. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 485, 5817-5830.	4.4	54
72	In hot water: effects of temperature-dependent interiors on the radii of water-rich super-Earths. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 458, 1330-1344.	4.4	49

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73	The Broadband and Spectrally Resolved H-band Eclipse of KELT-1b and the Role of Surface Gravity in Stratospheric Inversions in Hot Jupiters. <i>Astronomical Journal</i> , 2017, 154, 242.	4.7	49
74	ULTRACAM z&e2-band detection of the secondary eclipse of WASP-12b. <i>Monthly Notices of the Royal Astronomical Society</i> , 2013, 435, 2268-2273.	4.4	48
75	DIRECT IMAGING AND SPECTROSCOPY OF A YOUNG EXTRASOLAR KUIPER BELT IN THE NEAREST OB ASSOCIATION. <i>Astrophysical Journal Letters</i> , 2015, 807, L7.	8.3	47
76	Habitability and Biosignatures of Hycean Worlds. <i>Astrophysical Journal</i> , 2021, 918, 1.	4.5	46
77	Efficiency of planetesimal ablation in giant planetary envelopes. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 463, 4516-4532.	4.4	45
78	Effect of pressure broadening on molecular absorption cross sections in exoplanetary atmospheres. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 458, 1427-1449.	4.4	44
79	Neutral Cr and V in the Atmosphere of Ultra-hot Jupiter WASP-121 b. <i>Astrophysical Journal Letters</i> , 2020, 897, L5.	8.3	44
80	A<i>SPITZER</i>FIVE-BAND ANALYSIS OF THE JUPITER-SIZED PLANET TrES-1. <i>Astrophysical Journal</i> , 2014, 797, 42.	4.5	42
81	Molecular cross-sections for high-resolution spectroscopy of super-Earths, warm Neptunes, and hot Jupiters. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 495, 224-237.	4.4	42
82	Optimal measures for characterizing water-rich super-Earths. <i>International Journal of Astrobiology</i> , 2015, 14, 177-189.	1.6	38
83	Secondary Eclipses of HAT-P-13b. <i>Astrophysical Journal</i> , 2017, 836, 143.	4.5	36
84	HyDRA-H: Simultaneous Hybrid Retrieval of Exoplanetary Emission Spectra. <i>Astronomical Journal</i> , 2019, 158, 228.	4.7	35
85	The metal-rich atmosphere of the exo-Neptune HAT-P-26b. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 486, 1292-1315.	4.4	34
86	Atmospheric Retrieval of Exoplanets. , 2018, , 2153-2182.		29
87	A chemical kinetics code for modelling exoplanetary atmospheres. <i>Monthly Notices of the Royal Astronomical Society</i> , 2019, 487, 2242-2261.	4.4	27
88	On the Temperature Profiles and Emission Spectra of Mini-Neptune Atmospheres. <i>Astrophysical Journal</i> , 2020, 904, 154.	4.5	27
89	Community Targets of JWST–s Early Release Science Program: Evaluation of WASP-63b. <i>Astronomical Journal</i> , 2018, 156, 103.	4.7	25
90	Aurora: A Generalized Retrieval Framework for Exoplanetary Transmission Spectra. <i>Astrophysical Journal</i> , 2021, 913, 114.	4.5	25

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91	Sulfur chemistry in the atmospheres of warm and hot Jupiters. Monthly Notices of the Royal Astronomical Society, 2021, 506, 3186-3204.	4.4	24
92	A Featureless Infrared Transmission Spectrum for the Super-puff Planet Kepler-79d. Astronomical Journal, 2020, 160, 201.	4.7	24
93	The Origin and Evolution of Saturn, with Exoplanet Perspective. , 2018, , 5-43.		23
94	H- and Dissociation in Ultra-hot Jupiters: A Retrieval Case Study of WASP-18b. Astronomical Journal, 2020, 159, 232.	4.7	23
95	Assessing spectra and thermal inversions due to TiO in hot Jupiter atmospheres. Monthly Notices of the Royal Astronomical Society, 2020, 496, 3870-3886.	4.4	22
96	Assessment of supervised machine learning for atmospheric retrieval of exoplanets. Monthly Notices of the Royal Astronomical Society, 2020, 496, 269-281.	4.4	21
97	An Unusual Transmission Spectrum for the Sub-Saturn KELT-11b Suggestive of a Subsolar Water Abundance. Astronomical Journal, 2020, 160, 280.	4.7	21
98	Ground-based transmission spectroscopy with FORS2: A featureless optical transmission spectrum and detection of H ₂ O for the ultra-hot Jupiter WASP-103b. Monthly Notices of the Royal Astronomical Society, 2020, 497, 5155-5170.	4.4	20
99	How deep is the ocean? Exploring the phase structure of water-rich sub-Neptunes. Monthly Notices of the Royal Astronomical Society, 2021, 505, 3414-3432.	4.4	20
100	On Atmospheric Retrievals of Exoplanets with Inhomogeneous Terminators. Astrophysical Journal, 2022, 933, 79.	4.5	20
101	Considerations for atmospheric retrieval of high-precision brown dwarf spectra. Monthly Notices of the Royal Astronomical Society, 2020, 497, 5136-5154.	4.4	16
102	The Hubble PanCET Program: A Metal-rich Atmosphere for the Inflated Hot Jupiter HAT-P-41b. Astronomical Journal, 2021, 161, 51.	4.7	16
103	JexoSim: a time-domain simulator of exoplanet transit spectroscopy with JWST. Monthly Notices of the Royal Astronomical Society, 2020, 491, 378-397.	4.4	14
104	Assessing telluric correction methods for Na detections with high-resolution exoplanet transmission spectroscopy. Monthly Notices of the Royal Astronomical Society, 2021, 502, 4392-4404.	4.4	12
105	Transmission spectroscopy with VLT FORS2: a featureless spectrum for the low-density transiting exoplanet WASP-88b. Monthly Notices of the Royal Astronomical Society, 2021, 506, 2853-2870.	4.4	9
106	HyDRo: atmospheric retrieval of rocky exoplanets in thermal emission. Monthly Notices of the Royal Astronomical Society, 2022, 511, 2565-2584.	4.4	7
107	Characterizing atmospheres of cloudy temperate mini-neptunes with JWST. Monthly Notices of the Royal Astronomical Society, 2022, 514, 2073-2091.	4.4	7
108	A survey of sodium absorption in 10 giant exoplanets with high-resolution transmission spectroscopy. Monthly Notices of the Royal Astronomical Society, 2022, 514, 5192-5213.	4.4	7

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109	Ground-based Transmission Spectroscopy with VLT FORS2: Evidence for Faculae and Clouds in the Optical Spectrum of the Warm Saturn WASP-110b. <i>Astronomical Journal</i> , 2021, 162, 88.	4.7	6
110	Atmospheric Retrieval of Exoplanets. , 2018, , 1-30.		3
111	JexoSim 2.0: end-to-end JWST simulator for exoplanet spectroscopy “ implementation and case studies. <i>Monthly Notices of the Royal Astronomical Society</i> , 2021, 508, 433-452.	4.4	3
112	Constraints on <i>TESS</i> albedos for five hot Jupiters. <i>Monthly Notices of the Royal Astronomical Society</i> , 2022, 513, 3444-3457.	4.4	3