Steven Federman

List of Publications by Year
in descending order

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123 papers	3,264 citations	126907 33 h-index	182427 51 g-index
124 all docs	124 docs citations	124 times ranked	1560 citing authors

#	Article	IF	Citations
1	Ultraviolet Survey of CO and H₂in Diffuse Molecular Clouds: The Reflection of Two Photochemistry Regimes in Abundance Relationships. Astrophysical Journal, 2008, 687, 1075-1106.	4.5	213
2	Atomic to molecular hydrogen transition in interstellar clouds. Astrophysical Journal, 1979, 227, 466.	4.5	141
3	Chemical transitions for interstellar C2 and CN in cloud envelopes. Astrophysical Journal, 1994, 424, 772.	4.5	110
4	VLT UVES Observations of Interstellar Molecules and Diffuse Bands in the Magellanic Clouds. Astrophysical Journal, Supplement Series, 2006, 165, 138-172.	7.7	107
5	Measurements of CH and CH/+/ in diffuse interstellar clouds. Astrophysical Journal, 1982, 257, 125.	4.5	87
6	The abundance of CO in diffuse interstellar clouds - an ultraviolet survey. Astrophysical Journal, 1980, 242, 545.	4.5	84
7	Hubble Space Telescope observations of C2 molecules in diffuse interstellar clouds. Astrophysical Journal, 1995, 438, 740.	4.5	75
8	Cloud Structure and Physical Conditions in Starâ€formˆing Regions from Optical Observations. II. Analysis. Astrophysical Journal, 2005, 633, 986-1004.	4.5	67
9	Interstellar carbon monoxide toward zeta Ophiuchi. Astrophysical Journal, 1994, 420, 756.	4.5	64
10	Vibrationally excited H2, HCl, and NO(+) in the diffuse clouds toward Zeta Ophiuchi. Astrophysical Journal, 1995, 445, 325.	4.5	62
11	Synthesis of interstellar CH+ without OH. Monthly Notices of the Royal Astronomical Society, 1996, 279, L41-L46.	4.4	60
12	Hubble Space TelescopeSurvey of Interstellar¹²CO/¹³CO in the Solar Neighborhood. Astrophysical Journal, 2007, 667, 1002-1016.	4.5	60
13	Cosmic Ray--induced Chemistry toward Perseus OB2. Astrophysical Journal, 1996, 463, 181.	4.5	56
14	The CN radical in diffuse interstellar clouds. Astrophysical Journal, 1984, 287, 219.	4.5	55
15	The depletion of calcium in the interstellar medium. Astrophysical Journal, 1994, 424, 748.	4.5	55
16	Cloud Structure and Physical Conditions in Starâ€formˆing Regions from Optical Observations. I. Data and Component Structure. Astrophysical Journal, Supplement Series, 2004, 151, 313-343.	7.7	52
17	INTERSTELLAR CN AND CH⁺IN DIFFUSE MOLECULAR CLOUDS:¹²C/¹³C RATIOS AND CN EXCITATION. Astrophysical Journal, 2011, 728, 36.	4.5	52
18	Ultraviolet Transitions of Low Condensation Temperature Heavy Elements and New Data for Interstellar Arsenic, Selenium, Tellurium, and Lead. Astrophysical Journal, 1993, 416, L41.	4.5	52

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19	The impact of recent advances in laboratory astrophysics on our understanding of the cosmos. Reports on Progress in Physics, 2012, 75, 036901.	20.1	51
20	Ultraviolet Detection of Interstellar [TSUP]12[/TSUP]C[TSUP]17[/TSUP]O and the CO Isotopomeric Ratios toward X Persei. Astrophysical Journal, 2002, 574, L171-L174.	4.5	48
21	Further Evidence for Chemical Fractionation from Ultraviolet Observations of Carbon Monoxide. Astrophysical Journal, 2003, 591, 986-999.	4.5	47
22	Detection of boron, cobalt, and other weak interstellar lines toward Zeta Ophiuchi. Astrophysical Journal, 1993, 413, L51.	4.5	46
23	Newly synthesized lithium in the interstellar medium. Nature, 2000, 405, 656-658.	27.8	40
24	Nonthermal Chemistry in Diffuse Clouds with Low Molecular Abundances. Astrophysical Journal, 2003, 589, 319-337.	4.5	40
25	Oscillator Strengths and Predissociation Rates for Rydberg Transitions in12C16O,13C16O, and13C18O Involving theE1Î,B1Î£+, andW1Î States. Astrophysical Journal, 2006, 647, 1543-1548.	4.5	39
26	Fractionation of CO in the diffuse clouds toward Zeta Ophiuchi. Astrophysical Journal, 1992, 397, 482.	4.5	39
27	Far Ultraviolet Spectroscopic ExplorerMeasurements of Interstellar Fluorine. Astrophysical Journal, 2005, 619, 884-890.	4.5	38
28	High-resolution study of oscillator strengths and predissociation rates for¹²C¹⁶O. Astronomy and Astrophysics, 2012, 543, A69.	5.1	38
29	Diffuse interstellar clouds as a chemical laboratory - The chemistry of diatomic carbon species. Astrophysical Journal, 1989, 338, 140.	4.5	38
30	Oscillator Strengths for B â€“ X , C â€“ X , and E â€“ X Transitions in Carbon Monoxide. Astrophysical Journal, Supplement Series, 2001, 134, 133-138.	7.7	37
31	An Ultraâ€“highâ€Resolution Survey of the Interstellar7Li/6Li Isotope Ratio in the Solar Neighborhood. Astrophysical Journal, 2003, 586, 268-285.	4.5	37
32	Interstellar CN toward CH$mathsf{^+}$-forming regions. Astronomy and Astrophysics, 2002, 389, 993-1014.	5.1	36
33	The11B/10B Ratio of Local Interstellar Diffuse Clouds. Astrophysical Journal, 1998, 494, 614-622.	4.5	35
34	The boron isotope ratio in the interstellar medium. Nature, 1996, 381, 764-766.	27.8	32
35	Small scale structure in molecular gas from multi-epoch observations of HDÂ34078. Astronomy and Astrophysics, 2003, 401, 215-226.	5.1	32
36	Warm neutral halos around molecular clouds. V - OH (1665 and 1667 MHz) observations. Astrophysical Journal, 1993, 407, 163.	4.5	31

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37	Density Variations over Subparsec Scales in Diffuse Molecular Gas. Astrophysical Journal, 2001, 558, L105-L108.	4.5	29
38	HIGH-RESOLUTION OSCILLATOR STRENGTH MEASUREMENTS OF THEvâ€² = 0,1 BANDS OF THEB-X,C-X, ANDE-XSYSTEMS IN FIVE ISOTOPOLOGUES OF CARBON MONOXIDE. Astrophysical Journal, 2014, 788, 67.	4.5	29
39	Accurate oscillator strengths for ultraviolet lines of AR I - Implications for interstellar material. Astrophysical Journal, 1992, 401, 367.	4.5	29
40	Accurate oscillator strengths for interstellar ultraviolet lines of CL I. Astrophysical Journal, 1993, 406, 735.	4.5	28
41	Atomic Physics with the Goddard High Resolution Spectrograph on theHubbleSpaceTelescope. IV. Relative Oscillator Strengths for Singly Ionized Nickel. Astrophysical Journal, 1998, 498, 256-260.	4.5	27
42	Formaldehyde in envelopes of interstellar dark clouds. Astrophysical Journal, 1991, 375, 157.	4.5	27
43	Atomic Physics with the Goddard High-Resolution Spectrograph on the Hubble Space Telescope. I. Oscillator Strengths for Neutral Sulfur. Astrophysical Journal, 1995, 452, 269.	4.5	27
44	The Perseus B5 Molecular Cloud Halo: Measurements of Pressure, Temperature, and Composition. Astrophysical Journal, 1999, 510, 291-304.	4.5	27
45	OH ⁺ IN DIFFUSE MOLECULAR CLOUDS. Astrophysical Journal Letters, 2014, 781, L8.	8.3	26
46	The carbon chemistry in interstellar clouds toward moderately reddened stars. Astrophysical Journal, 1988, 328, 777.	4.5	26
47	REVISITING THE CHLORINE ABUNDANCE IN DIFFUSE INTERSTELLAR CLOUDS FROM MEASUREMENTS WITH THECOPERNICUSSATELLITE. Astrophysical Journal, 2012, 744, 174.	4.5	25
48	Absolute Vacuum Ultraviolet Oscillator Strengths in Coiiand the Interstellar Cobalt Abundance. Astrophysical Journal, 1998, 500, 1064-1068.	4.5	24
49	Physical Conditions in the Foreground Gas of Reflection Nebulae: NGC 2023, vdB 102, and NGC 7023. Astrophysical Journal, Supplement Series, 2001, 135, 201-225.	7.7	23
50	Atomic Physics with the Goddard High Resolution Spectrograph on theHubble Space Telescope. III. Oscillator Strengths for Neutral Carbon. Astrophysical Journal, 1997, 484, 820-827.	4.5	22
51	Lifetime Measurements in SnII. Astrophysical Journal, 2000, 542, 400-403.	4.5	22
52	Intersystem transitions of interstellar carbon monoxide toward zeta Ophiuchi. Astrophysical Journal, 1994, 432, L139.	4.5	22
53	Theoretical Modeling ofISOResults on Planetary Nebula NGC 7027. Astrophysical Journal, 1999, 515, 640-648.	4.5	21
54	High-resolution study of oscillator strengths and predissociation rates for¹³C¹⁶O and¹²C¹⁸O. Astronomy and Astrophysics, 2014, 566, A96.	5.1	21

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55	The Amount of CH Produced during CH+Synthesis in Interstellar Clouds. Astrophysical Journal, 1997, 481, 795-799.	4.5	21
56	Accurate Calculation of Mgii3sâ€“npOscillator Strengths. Astrophysical Journal, 1999, 527, 470-473.	4.5	19
57	FUSE Measurements of Rydberg Bands of Interstellar CO between 925 and 1150. Astrophysical Journal, 2003, 597, L29-L32.	4.5	19
58	The Nature of Interstellar Gas toward the Pleiades Revealed in Absorption Lines. Astrophysical Journal, 2006, 649, 788-806.	4.5	19
59	THE C ¹⁴ N/C ¹⁵ N RATIO IN DIFFUSE MOLECULAR CLOUDS. Astrophysical Journal Letters, 2015, 804, L3.	8.3	19
60	Oscillator strengths of selected resonance transitions in neutral sulfur. Astrophysical Journal, 1994, 428, 393.	4.5	19
61	Reanalysis ofCopernicusMeasurements of Interstellar Carbon Monoxide. Astrophysical Journal, 2004, 605, 278-284.	4.5	18
62	CO emission and variable CH and CH⁺absorption towards HDÂ34078: evidence for a nascent bow shock?. Astronomy and Astrophysics, 2009, 501, 221-237.	5.1	18
63	Modeling the chemistry of the dense interstellar clouds. I - Observational constraints for the chemistry. Astrophysical Journal, 1990, 354, 504.	4.5	18
64	Oscillator strengths for transitions to Rydberg levels in $mathsf{^{12}}$C$mathsf{^{16}}$O, $mathsf{^{13}}$C$mathsf{^{16}}$O and $mathsf{^{13}}$C$mathsf{^{18}}$O between 967 and 972 Ã.... Astronomy and Astrophysics, 2004, 424, 355-361.	5.1	17
65	ULTRAVIOLET MEASUREMENTS OF INTERSTELLAR C₂. Astrophysical Journal, 2012, 761, 38.	4.5	17
66	Probing the Photodissociation Region toward HD 200775. Astrophysical Journal, 1997, 489, 758-765.	4.5	16
67	Relative Band Oscillator Strengths for Carbon Monoxide: [ITAL]A[/ITAL] [TSUP]1[/TSUP]Îâ€“[ITAL]X[/ITAL] [TSUP]1[/TSUP]Î£[TSUP]+[/TSUP] Transitions. Astrophysical Journal, 1997, 477, L61-L64.	4.5	16
68	High-Resolution Study of ¹³C¹⁶O Aâ€“X(vâ€² = 0â€“9) Bands Using the VUV-FTS at SOLEIL: Revised Term Values. Journal of Physical Chemistry A, 2013, 117, 9644-9652.	2.5	16
69	Abundances and Depletions of Neutron-capture Elements in the Interstellar Medium. Astrophysical Journal, Supplement Series, 2018, 236, 36.	7.7	16
70	Interstellar environments probed by CA I absorption and the effects of density-dependent depletions. Astrophysical Journal, 1991, 381, L17.	4.5	16
71	Observation of a new electronic state of CO perturbing $m {W,{}^1Pi (v=1)}$WÎ1(v=1). Journal of Chemical Physics, 2014, 141, 144311.	3.0	15
72	Diffuse interstellar clouds associated with dark clouds. Astrophysical Journal, 1982, 260, 124.	4.5	15

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73	High-Resolution Measurements of Intersystem Bands of Carbon Monoxide toward X Persei. Astrophysical Journal, 2002, 572, L95-L98.	4.5	15
74	Lifetimes and Oscillator Strengths for Ultraviolet Transitions in Neutral Sulfur. Astrophysical Journal, 1998, 502, 1010-1014.	4.5	13
75	ORFEUSObservations of the Foreground Gas toward HD 37903. Astrophysical Journal, 2002, 575, 234-239.	4.5	13
76	The Effects of Doubly Ionized Chemistry on SH + and S +2 Abundances in X-Ray-dominated Regions. Astrophysical Journal, 2008, 675, L81-L84.	4.5	13
77	Comment on â€œExperimental Test of Self-Shielding in Vacuum Ultraviolet Photodissociation of COâ€• Science, 2009, 324, 1516-1516.	12.6	13
78	Oscillator Strengths for Ultraviolet Transitions in Cliiand Cliii. Astrophysical Journal, 2005, 621, 1159-1162.	4.5	12
79	Oscillator Strengths for Ultraviolet Transitions in Pii. Astrophysical Journal, 2007, 660, 919-921.	4.5	12
80	THE ABUNDANCE OF BORON IN DIFFUSE INTERSTELLAR CLOUDS. Astrophysical Journal, 2011, 728, 70.	4.5	12
81	The Interstellar Rubidium Isotope Ratio toward Ophiuchi A. Astrophysical Journal, 2004, 603, L105-L108.	4.5	11
82	High-resolution study of oscillator strengths and predissociation rates for ¹³C¹⁸O . Astronomy and Astrophysics, 2017, 602, A76.	5.1	11
83	Atomic Physics with the Goddard High Resolution Spectrograph on theHubble Space Telescope. V. Oscillator Strengths for Neutral Carbon Lines below 1200 A. Astrophysical Journal, 2001, 555, 1020-1026.	4.5	10
84	Hubble Space TelescopeMeasurements of Vacuum Ultraviolet Lines of Interstellar CH. Astrophysical Journal, 2007, 659, 1352-1359.	4.5	10
85	VIS and VUV spectroscopy of ¹²C¹⁷O and deperturbation analysis of the A¹Î, Ï… = 1â€“5 levels. RSC Advances, 2016, 6, 31588-31606.	3.6	9
86	Oscillator Strengths for Ultraviolet Transitions in P ii: The Multiplet at 1308 Ã…. Astrophysical Journal, 2018, 868, 42.	4.5	9
87	High-velocity interstellar gas toward HD 169454. Astronomical Journal, 1992, 104, 691.	4.7	9
88	The 1088 A feature toward reddened stars. Astrophysical Journal, 1986, 309, 306.	4.5	9
89	The CO J = 2-1 emission from the interstellar gas toward Zeta Ophiuchi. Astrophysical Journal, 1987, 316, L71.	4.5	9
90	The need for branching fraction measurements in multiply-charged ions. Physica Scripta, 2007, 75, C1-C7.	2.5	8

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91	LIFETIMES AND OSCILLATOR STRENGTHS FOR ULTRAVIOLET TRANSITIONS IN SINGLY IONIZED COPPER. Astrophysical Journal, 2009, 702, 880-883.	4.5	8
92	Atlas of new and revised high-resolution spectroscopy of six CO isotopologues in the 101â€“115 nm range. Astronomy and Astrophysics, 2018, 614, A114.	5.1	8
93	Ab Initio Study of Ground-state CS Photodissociation via Highly Excited Electronic States. Astrophysical Journal, 2019, 882, 86.	4.5	8
94	Physical Conditions in Shocked Interstellar Gas Interacting with the Supernova Remnant IC 443*. Astrophysical Journal, 2020, 897, 83.	4.5	8
95	A low density molecular cloud in the vicinity of the Pleiades. Astrophysical Journal, 1984, 283, 626.	4.5	8
96	RUBIDIUM IN THE INTERSTELLAR MEDIUM. Astrophysical Journal, 2009, 706, 614-622.	4.5	7
97	THE ⁷ Li/ ⁶ Li ISOTOPE RATIO NEAR THE SUPERNOVA REMNANT IC 443. Astrophysical Journal Letters, 2012, 750, L15.	8.3	7
98	LIFETIMES AND OSCILLATOR STRENGTHS FOR ULTRAVIOLET TRANSITIONS IN SINGLY IONIZED LEAD. Astrophysical Journal, 2015, 808, 112.	4.5	7
99	High-resolution spectroscopy of the ${A}^{1}{m{Pi }}(v^{prime}) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 432 Td (=0mbox{--}10) in¹³C¹⁸O: term values, ro-vibrational oscillator strengths and HÃ¶nlâ€“London corrections. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 154001.	1.5	7
100	Lifetimes and oscillator strengths for ultraviolet transitions in singly-ionized germanium. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 155007.	1.5	7
101	On the detection of rubidium in diffuse interstellar clouds. Astrophysical Journal, 1985, 290, L55.	4.5	7
102	The nature of the Naâ€ƒi D-lines in the Red Rectangleâ˜…. Monthly Notices of the Royal Astronomical Society, 2011, 417, 2860-2873.	4.4	6
103	The au-scale structure in diffuse molecular gas towardsÎ¶â€‰Persei. Astronomy and Astrophysics, 2013, 559, A131.	5.1	6
104	Lifetimes and Oscillator Strengths for Ultraviolet Transitions in Neutral Chlorine. Astrophysical Journal, 2019, 887, 14.	4.5	6
105	DIFFUSE ATOMIC AND MOLECULAR GAS NEAR IC 443. Astrophysical Journal, 2009, 696, 1533-1542.	4.5	5
106	Formaldehyde reactions in dark clouds. Astrophysical Journal, 1992, 391, 141.	4.5	5
107	Multireference configuration interaction study of the predissociation of C2 via its F1Î u state. Journal of Chemical Physics, 2022, 157, .	3.0	5
108	Runaway O-star Bow Shocks as Particle Accelerators? The Case of AE Aur Revisited. Astrophysical Journal, 2019, 885, 105.	4.5	4

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109	Distances to diffuse interstellar clouds from IRAS measurements and observations of optical absorption lines. Astronomical Journal, 1991, 102, 1393.	4.7	4
110	Lifetimes and oscillator strengths for ultraviolet transitions in singly-ionized tin. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 215002.	1.5	3
111	Parsec-scale Variations in the ⁷Li i/⁶Li i Isotope Ratio Toward IC 348 and the Perseus OB 2 Association* â€. Astrophysical Journal Letters, 2017, 835, L16.	8.3	3
112	The Connection between Different Tracers of the Diffuse Interstellar Medium: Kinematics. Astrophysical Journal, 2018, 858, 111.	4.5	3
113	The Transition from Diffuse Molecular Gas to Molecular Cloud Material in Taurus. Astrophysical Journal, 2021, 914, 59.	4.5	3
114	Boron abundances in diffuse interstellar clouds. Proceedings of the International Astronomical Union, 2009, 5, 237-242.	0.0	2
115	Gleaning Atomic and Molecular Structure from Oscillator Strengths Needed in Astrophysics. Physica Scripta, 2004, 70, C21-C23.	2.5	1
116	Oscillator strengths for ultraviolet transitions in P II and Cu II. Journal of Physics: Conference Series, 2008, 130, 012007.	0.4	1
117	The Interstellar Abundance of Lead: Experimental Oscillator Strengths for Pb ii Î»1203 and Î»1433 and New Detections of Pb ii in the Interstellar Medium. Proceedings of the International Astronomical Union, 2015, 11, .	0.0	1
118	Diffuse Interstellar Clouds. Highlights of Astronomy, 1992, 9, 65-72.	0.0	0
119	Atomic Data For Determining Abundances In Interstellar Clouds. AIP Conference Proceedings, 2007, , .	0.4	0
120	A Multiwavelength Study of the Close Environment of HD 34078. , 2009, , .		0
121	Observational Constraints for Modeling Diffuse Molecular Clouds. Proceedings of the International Astronomical Union, 2013, 9, 321-329.	0.0	0
122	High-resolution oscillator strength measurements of the v' = 0,1 bands of the B â^'X, C â^'X, and E â^'X systems in five isotopologues of carbon monoxide. Proceedings of the International Astronomical Union, 2015, 11, .	0.0	0
123	Consequences of Refining the Distance to the Supergiant HD 169454. Research Notes of the AAS, 2019, 3, 60.	0.7	0