Catherine Walsh

List of Publications by Year
in descending order

134 papers	6,202 citations	71102 41 h-index	76900 74 g-index
135 all docs	135 docs citations	135 times ranked	3416 citing authors

#	Article	IF	Citations
1	The UMIST database for astrochemistry 2012. Astronomy and Astrophysics, 2013, 550, A36.	5.1	714
2	Abundant molecular oxygen in the coma of comet 67P/Churyumovâ€“Gerasimenko. Nature, 2015, 526, 678-681.	27.8	260
3	Grain Surface Models and Data for Astrochemistry. Space Science Reviews, 2017, 212, 1-58.	8.1	177
4	Negative Ions in Space. Chemical Reviews, 2017, 117, 1765-1795.	47.7	176
5	ALMA unveils rings and gaps in the protoplanetary system HD 169142: signatures of two giant protoplanets. Astronomy and Astrophysics, 2017, 600, A72.	5.1	176
6	Complex organic molecules in protoplanetary disks. Astronomy and Astrophysics, 2014, 563, A33.	5.1	169
7	CHEMICAL PROCESSES IN PROTOPLANETARY DISKS. Astrophysical Journal, 2010, 722, 1607-1623.	4.5	168
8	FIRST DETECTION OF GAS-PHASE METHANOL IN A PROTOPLANETARY DISK. Astrophysical Journal Letters, 2016, 823, L10.	8.3	166
9	The molecular composition of the planet-forming regions of protoplanetary disks across the luminosity regime. Astronomy and Astrophysics, 2015, 582, A88.	5.1	133
10	CHEMICAL PROCESSES IN PROTOPLANETARY DISKS. II. ON THE IMPORTANCE OF PHOTOCHEMISTRY AND X-RAY IONIZATION. Astrophysical Journal, 2012, 747, 114.	4.5	123
11	Setting the volatile composition of (exo)planet-building material. Astronomy and Astrophysics, 2016, 595, A83.	5.1	123
12	Molecules with ALMA at Planet-forming Scales (MAPS). I. Program Overview and Highlights. Astrophysical Journal, Supplement Series, 2021, 257, 1.	7.7	117
13	ALMA HINTS AT THE PRESENCE OF TWO COMPANIONS IN THE DISK AROUND HD 100546. Astrophysical Journal Letters, 2014, 791, L6.	8.3	114
14	ALMA OBSERVATIONS OF A GAP AND A RING IN THE PROTOPLANETARY DISK AROUND TW HYA. Astrophysical Journal Letters, 2016, 819, L7.	8.3	105
15	Molecular abundances and C/O ratios in chemically evolving planet-forming disk midplanes. Astronomy and Astrophysics, 2018, 613, A14.	5.1	100
16	Hydrocarbon Anions in Interstellar Clouds and Circumstellar Envelopes. Astrophysical Journal, 2007, 662, L87-L90.	4.5	98
17	Water in star-forming regions: physics and chemistry from clouds to disks as probed by Herschel spectroscopy. Astronomy and Astrophysics, 2021, 648, A24.	5.1	98
18	CO destruction in protoplanetary disk midplanes: Inside versus outside the CO snow surface. Astronomy and Astrophysics, 2018, 618, A182.	5.1	94

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19	A GAP WITH A DEFICIT OF LARGE GRAINS IN THE PROTOPLANETARY DISK AROUND TW Hya. Astrophysical Journal Letters, 2016, 829, L35.	8.3	90
20	Molecules with ALMA at Planet-forming Scales (MAPS). V. CO Gas Distributions. Astrophysical Journal, Supplement Series, 2021, 257, 5.	7.7	87
21	Sensitivity Analysis of Grain Surface Chemistry to Binding Energies of Ice Species. Astrophysical Journal, 2017, 844, 71.	4.5	84
22	CHEMICAL EVOLUTION OF PROTOPLANETARY DISKSâ€"THE EFFECTS OF VISCOUS ACCRETION, TURBULENT MIXING, AND DISK WINDS. Astrophysical Journal, 2011, 731, 115.	4.5	82
23	THE EFFECTS OF MOLECULAR ANIONS ON THE CHEMISTRY OF DARK CLOUDS. Astrophysical Journal, 2009, 700, 752-761.	4.5	76
24	Cometary ices in forming protoplanetary disc midplanes. Monthly Notices of the Royal Astronomical Society, 2016, 462, 977-993.	4.4	73
25	A primordial origin for molecular oxygen in comets: a chemical kinetics study of the formation and survival of O₂ice from clouds to discs. Monthly Notices of the Royal Astronomical Society, 2016, 462, S99-S115.	4.4	70
26	Robustness of N₂H⁺as tracer of the CO snowline. Astronomy and Astrophysics, 2017, 599, A101.	5.1	70
27	The Distribution and Excitation of CH₃CN in a Solar Nebula Analog. Astrophysical Journal, 2018, 859, 131.	4.5	65
28	Grand Challenges in Protoplanetary Disc Modelling. Publications of the Astronomical Society of Australia, 2016, 33, .	3.4	61
29	CANDIDATE WATER VAPOR LINES TO LOCATE THE H₂O SNOWLINE THROUGH HIGH-DISPERSION SPECTROSCOPIC OBSERVATIONS. I. THE CASE OF A T TAURI STAR. Astrophysical Journal, 2016, 827, 113.	4.5	58
30	Molecules with ALMA at Planet-forming Scales (MAPS). IV. Emission Surfaces and Vertical Distribution of Molecules. Astrophysical Journal, Supplement Series, 2021, 257, 4.	7.7	58
31	Molecules with ALMA at Planet-forming Scales (MAPS). II. CLEAN Strategies for Synthesizing Images of Molecular Line Emission in Protoplanetary Disks. Astrophysical Journal, Supplement Series, 2021, 257, 2.	7.7	58
32	Molecules with ALMA at Planet-forming Scales (MAPS). III. Characteristics of Radial Chemical Substructures. Astrophysical Journal, Supplement Series, 2021, 257, 3.	7.7	57
33	Detecting Weak Spectral Lines in Interferometric Data through Matched Filtering. Astronomical Journal, 2018, 155, 182.	4.7	56
34	Molecules with ALMA at Planet-forming Scales (MAPS). XIV. Revealing Disk Substructures in Multiwavelength Continuum Emission. Astrophysical Journal, Supplement Series, 2021, 257, 14.	7.7	56
35	Methanol along the path from envelope to protoplanetary disc. Monthly Notices of the Royal Astronomical Society, 2014, 445, 913-929.	4.4	55
36	The First Detection of ¹³C¹⁷O in a Protoplanetary Disk: A Robust Tracer of Disk Gas Mass. Astrophysical Journal Letters, 2019, 882, L31.	8.3	54

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37	Abundant Refractory Sulfur in Protoplanetary Disks. Astrophysical Journal, 2019, 885, 114.	4.5	52
38	Molecules with ALMA at Planet-forming Scales (MAPS). XVIII. Kinematic Substructures in the Disks of HD 163296 and MWC 480. Astrophysical Journal, Supplement Series, 2021, 257, 18.	7.7	51
39	Temperature Structures of Embedded Disks: Young Disks in Taurus Are Warm. Astrophysical Journal, 2020, 901, 166.	4.5	49
40	Chronology of Episodic Accretion in Protostarsâ€"An ALMA Survey of the CO and H₂O Snowlines. Astrophysical Journal, 2019, 884, 149.	4.5	47
41	CO emission tracing a warp or radial flow within â‰²100 au in the HD 100546 protoplanetary disk. Astronomy and Astrophysics, 2017, 607, A114.	5.1	46
42	DISCOVERY OF INTERSTELLAR ANIONS IN CEPHEUS AND AURIGA. Astrophysical Journal Letters, 2011, 730, L18.	8.3	42
43	The complex chemistry of outflow cavity walls exposed: the case of low-mass protostars. Monthly Notices of the Royal Astronomical Society, 2015, 451, 3836-3856.	4.4	42
44	ALMA REVEALS THE ANATOMY OF THE mm-SIZED DUST AND MOLECULAR GAS IN THE HD 97048 DISK. Astrophysical Journal, 2016, 831, 200.	4.5	42
45	An inherited complex organic molecule reservoir in a warm planet-hosting disk. Nature Astronomy, 2021, 5, 684-690.	10.1	40
46	Molecules with ALMA at Planet-forming Scales (MAPS). VII. Substellar O/H and C/H and Superstellar C/O in Planet-feeding Gas. Astrophysical Journal, Supplement Series, 2021, 257, 7.	7.7	40
47	Water delivery from cores to disks: Deuteration as a probe of the prestellar inheritance of H₂O. Astronomy and Astrophysics, 2017, 599, A40.	5.1	38
48	An Unbiased ALMA Spectral Survey of the LkCa 15 and MWC 480 Protoplanetary Disks. Astrophysical Journal, 2020, 893, 101.	4.5	38
49	Discovery of An au-scale Excess in Millimeter Emission from the Protoplanetary Disk around TW Hya. Astrophysical Journal Letters, 2019, 878, L8.	8.3	37
50	Molecules with ALMA at Planet-forming Scales (MAPS). VI. Distribution of the Small Organics HCN, C₂H, and H₂CO. Astrophysical Journal, Supplement Series, 2021, 257, 6.	7.7	37
51	The TW Hya Rosetta Stone Project. III. Resolving the Gaseous Thermal Profile of the Disk. Astrophysical Journal, 2021, 908, 8.	4.5	35
52	Sequential planet formation in the HD 100546 protoplanetary disk?. Astronomy and Astrophysics, 2015, 580, A105.	5.1	35
53	Candidate Water Vapor Lines to Locate the H₂O Snowline Through High-dispersion Spectroscopic Observations. II. The Case of a Herbig Ae Star. Astrophysical Journal, 2017, 836, 118.	4.5	34
54	Sulphur monoxide exposes a potential molecular disk wind from the planet-hosting disk around HD 100546. Astronomy and Astrophysics, 2018, 611, A16.	5.1	34

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55	Upper limits on CH₃OH in the HD 163296 protoplanetary disk. Astronomy and Astrophysics, 2019, 623, A124.	5.1	33
56	Molecules with ALMA at Planet-forming Scales (MAPS). XIX. Spiral Arms, a Tail, and Diffuse Structures Traced by CO around the GM Aur Disk. Astrophysical Journal, Supplement Series, 2021, 257, 19.	7.7	33
57	Resolving structure of the disc around HD100546 at 7Âmm with ATCA. Monthly Notices of the Royal Astronomical Society, 2015, 453, 414-438.	4.4	32
58	A low-mass protostarâ€™s disk-envelope interface: disk-shadowing evidence from ALMA DCO⁺observations of VLA1623. Astronomy and Astrophysics, 2015, 579, A114.	5.1	32
59	Chemistry and distribution of daughter species in the circumstellar envelopes of O-rich AGB stars. Astronomy and Astrophysics, 2016, 588, A4.	5.1	31
60	Probing midplane CO abundance and gas temperature with DCO⁺ in the protoplanetary disk around HD 169142. Astronomy and Astrophysics, 2018, 614, A106.	5.1	31
61	Photodesorption of H₂O, HDO, and D₂O ice and its impact on fractionation. Astronomy and Astrophysics, 2015, 575, A121.	5.1	30
62	Molecules with ALMA at Planet-forming Scales (MAPS). IX. Distribution and Properties of the Large Organic Molecules HC₃N, CH₃CN, and c-C₃H₂. Astrophysical Journal, Supplement Series, 2021, 257, 9.	7.7	30
63	Molecules with ALMA at Planet-forming Scales (MAPS). XII. Inferring the C/O and S/H Ratios in Protoplanetary Disks with Sulfur Molecules. Astrophysical Journal, Supplement Series, 2021, 257, 12.	7.7	30
64	Photodissociation and chemistry of N₂in the circumstellar envelope of carbon-rich AGB stars. Astronomy and Astrophysics, 2014, 568, A111.	5.1	29
65	Dust Continuum Emission and the Upper Limit Fluxes of Submillimeter Water Lines of the Protoplanetary Disk around HD 163296 Observed by ALMA. Astrophysical Journal, 2019, 875, 96.	4.5	28
66	MOLECULAR LINE EMISSION FROM A PROTOPLANETARY DISK IRRADIATED EXTERNALLY BY A NEARBY MASSIVE STAR. Astrophysical Journal Letters, 2013, 766, L23.	8.3	27
67	The composition of hot Jupiter atmospheres assembled within chemically evolved protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2020, 499, 2229-2244.	4.4	27
68	Water in low-mass star-forming regions withHerschel. Astronomy and Astrophysics, 2014, 572, A81.	5.1	26
69	Molecules with ALMA at Planet-forming Scales. XX. The Massive Disk around GM Aurigae. Astrophysical Journal, Supplement Series, 2021, 257, 20.	7.7	26
70	Probing Episodic Accretion in Very Low Luminosity Objects. Astrophysical Journal, 2018, 854, 15.	4.5	25
71	Cometary compositions compared with protoplanetary disk midplane chemical evolution. Astronomy and Astrophysics, 2019, 629, A84.	5.1	25
72	Molecules with ALMA at Planet-forming Scales (MAPS). XI. CN and HCN as Tracers of Photochemistry in Disks. Astrophysical Journal, Supplement Series, 2021, 257, 11.	7.7	25

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73	THE DISSOCIATIVE RECOMBINATION OF PROTONATED ACRYLONITRILE, CH₂CHCNH⁺, WITH IMPLICATIONS FOR THE NITRILE CHEMISTRY IN DARK MOLECULAR CLOUDS AND THE UPPER ATMOSPHERE OF TITAN. Astrophysical Journal, 2009, 695, 317-324.	4.5	24
74	Molecules with ALMA at Planet-forming Scales (MAPS). XIII. HCO⁺ and Disk Ionization Structure. Astrophysical Journal, Supplement Series, 2021, 257, 13.	7.7	24
75	Complex organic molecules along the accretion flow in isolated and externally irradiated protoplanetary disks. Faraday Discussions, 2014, 168, 389-421.	3.2	23
76	CH abundance gradient in TMC-1. Astronomy and Astrophysics, 2011, 531, A121.	5.1	22
77	Linking interstellar and cometary O₂: a deep search for ¹⁶O¹⁸O in the solar-type protostar IRAS 16293â€“2422. Astronomy and Astrophysics, 2018, 618, A11.	5.1	22
78	Molecules with ALMA at Planet-forming Scales (MAPS). VIII. CO Gap in AS 209â€”Gas Depletion or Chemical Processing?. Astrophysical Journal, Supplement Series, 2021, 257, 8.	7.7	22
79	ALMA-resolved salt emission traces the chemical footprint and inner wind morphology of VY Canis Majoris. Astronomy and Astrophysics, 2016, 592, A76.	5.1	21
80	Methanol ice co-desorption as a mechanism to explain cold methanol in the gas-phase. Astronomy and Astrophysics, 2018, 612, A88.	5.1	21
81	Molecules with ALMA at Planet-forming Scales (MAPS). XV. Tracing Protoplanetary Disk Structure within 20 au. Astrophysical Journal, Supplement Series, 2021, 257, 15.	7.7	21
82	Complex Organic Molecules tracing shocks along the outflow cavity in the high-mass protostar IRASÂ20126+4104. Monthly Notices of the Royal Astronomical Society, 0, , stx004.	4.4	20
83	Molecules with ALMA at Planet-forming Scales (MAPS). XVI. Characterizing the Impact of the Molecular Wind on the Evolution of the HD 163296 System. Astrophysical Journal, Supplement Series, 2021, 257, 16.	7.7	20
84	Observing substructure in circumstellar discs around massive young stellar objects. Monthly Notices of the Royal Astronomical Society, 2019, 482, 4673-4686.	4.4	19
85	The Effect of Carbon Grain Destruction on the Chemical Structure of Protoplanetary Disks. Astrophysical Journal, 2019, 870, 129.	4.5	19
86	The TW Hya Rosetta Stone Project. II. Spatially Resolved Emission of Formaldehyde Hints at Low-temperature Gas-phase Formation. Astrophysical Journal, 2021, 906, 111.	4.5	19
87	DISSOCIATIVE RECOMBINATION OF PROTONATED FORMIC ACID: IMPLICATIONS FOR MOLECULAR CLOUD AND COMETARY CHEMISTRY. Astrophysical Journal, 2010, 709, 1429-1434.	4.5	19
88	Molecules with ALMA at Planet-forming Scales (MAPS). XVII. Determining the 2D Thermal Structure of the HD 163296 Disk. Astrophysical Journal, Supplement Series, 2021, 257, 17.	7.7	19
89	Candidate Water Vapor Lines to Locate the H₂O Snowline through High-dispersion Spectroscopic Observations. III. Submillimeter H₂ ¹⁶O and H₂ ¹⁸O Lines. Astrophysical Journal, 2018, 855, 62.	4.5	18
90	The Nitrogen Carrier in Inner Protoplanetary Disks. Astrophysical Journal, 2019, 874, 92.	4.5	18

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91	X-ray-induced chemistry of water and related molecules in low-mass protostellar envelopes. Astronomy and Astrophysics, 2021, 650, A180.	5.1	18
92	Formation of cometary O₂ ice and related ice species on grain surfaces in the midplane of the pre-solar nebula. Astronomy and Astrophysics, 2019, 621, A75.	5.1	17
93	The TW Hya Rosetta Stone Project. I. Radial and Vertical Distributions of DCN and DCO⁺. Astronomical Journal, 2021, 161, 38.	4.7	16
94	Chemical modelling of dustâ€“gas chemistry within AGB outflows â€“ I. Effect on the gas-phase chemistry. Monthly Notices of the Royal Astronomical Society, 2019, 490, 2023-2041.	4.4	15
95	Molecules with ALMA at Planet-forming Scales (MAPS). X. Studying Deuteration at High Angular Resolution toward Protoplanetary Disks. Astrophysical Journal, Supplement Series, 2021, 257, 10.	7.7	15
96	High Spatial Resolution Observations of Molecular Lines toward the Protoplanetary Disk around TW Hya with ALMA. Astrophysical Journal, 2021, 914, 113.	4.5	14
97	Chemical signatures of a warped protoplanetary disc. Monthly Notices of the Royal Astronomical Society, 2021, 505, 4821-4837.	4.4	13
98	A revised lower estimate of ozone columns during Earthâ€™s oxygenated history. Royal Society Open Science, 2022, 9, 211165.	2.4	13
99	Observing protoplanetary discs with the Square Kilometre Array â€“ I. Characterizing pebble substructure caused by forming planets. Monthly Notices of the Royal Astronomical Society, 2020, 498, 5116-5127.	4.4	11
100	The chemistry of extragalactic carbon stars. Monthly Notices of the Royal Astronomical Society, 2012, 426, 2689-2702.	4.4	10
101	The TW Hya Rosetta Stone Project IV: A Hydrocarbon-rich Disk Atmosphere. Astrophysical Journal, 2021, 911, 29.	4.5	10
102	Dissociative Recombination of D3S+: Product Branching Fractions and Absolute Cross Sections. Astrophysical Journal, 2008, 681, 1717-1724.	4.5	9
103	Complex cyanides as chemical clocks in hot cores. Astronomy and Astrophysics, 2018, 616, A67.	5.1	9
104	First detections of H¹³CO⁺ and HC¹⁵N in the disk around HD 97048. Astronomy and Astrophysics, 2019, 629, A75.	5.1	9
105	Organic molecular anions in interstellar and circumstellar environments. Proceedings of the International Astronomical Union, 2008, 4, 157-160.	0.0	8
106	Dissociative recombination of the acetaldehyde cation, CH3CHO+. Physical Chemistry Chemical Physics, 2010, 12, 11670.	2.8	8
107	Methanol formation in TWÂHya and future prospects for detecting larger complex molecules in disks with ALMA. Proceedings of the International Astronomical Union, 2017, 13, 395-402.	0.0	7
108	VLA cm-wave survey of young stellar objects in the Oph A cluster: constraining extreme UV- and X-ray-driven disk photoevaporation. Astronomy and Astrophysics, 2019, 631, A58.	5.1	6

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109	Chemical modelling of dustâ€“gas chemistry within AGB outflows â€“ II. Effect of the dust-grain size distribution. Monthly Notices of the Royal Astronomical Society, 2020, 495, 1650-1665.	4.4	6
110	Unveiling the outer dust disc of TW Hya with deep ALMA observations. Monthly Notices of the Royal Astronomical Society: Letters, 2022, 515, L23-L28.	3.0	6
111	Chemical modelling of dustâ€“gas chemistry within AGB outflows â€“ III. Photoprocessing of the ice and return to the ISM. Monthly Notices of the Royal Astronomical Society, 2020, 501, 491-506.	4.4	5
112	ALMA High-resolution Multiband Analysis for the Protoplanetary Disk around TW Hya. Astrophysical Journal, 2022, 928, 49.	4.5	5
113	Astrochemical modelling of infrared dark clouds. Astronomy and Astrophysics, 2022, 662, A39.	5.1	5
114	Different molecular filament widths as tracers of accretion on to filaments. Monthly Notices of the Royal Astronomical Society, 2022, 513, 1244-1253.	4.4	4
115	On the origin of O2 and other volatile species in comets. Proceedings of the International Astronomical Union, 2017, 13, 187-195.	0.0	3
116	Fevering Interstellar Ices Have More CH₃OD. ACS Earth and Space Chemistry, 2022, 6, 1171-1188.	2.7	3
117	Cosmic Rays, UV Photons, and Haze Formation in the Upper Atmospheres of Hot Jupiters. Proceedings of the International Astronomical Union, 2013, 8, 303-304.	0.0	2
118	Surface astrochemistry: a computational chemistry perspective. Proceedings of the International Astronomical Union, 2017, 13, 293-304.	0.0	2
119	Hot core chemistry in young stellar objects: protoplanetary disks and outflows. EAS Publications Series, 2011, 52, 229-234.	0.3	1
120	Unraveling the Dust Formation Process in R Dor. EAS Publications Series, 2015, 71-72, 255-257.	0.3	1
121	Water in Protoplanetary Disks. Proceedings of the International Astronomical Union, 2012, 8, 235-237.	0.0	0
122	An end-to-end Far-infrared Interferometer Instrument Simulator (FIInS). Proceedings of SPIE, 2014, , .	0.8	0
123	Highlights from Faraday Discussion 168: Astrochemistry of Dust, Ice and Gas, Leiden, The Netherlands, April 2014. Chemical Communications, 2014, 50, 13636-13644.	4.1	0
124	Chemical complexity in protoplanetary disks in the era of ALMA and Rosetta. EAS Publications Series, 2015, 75-76, 315-320.	0.3	0
125	Interstellar Methanol from the Lab to Protoplanetary Disks. Proceedings of the International Astronomical Union, 2015, 11, .	0.0	0
126	Possibility to locate the position of the H₂O snowline in protoplanetary disks through spectroscopic observations. Proceedings of the International Astronomical Union, 2017, 13, 113-120.	0.0	0

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127	Chemical evolution in planet-forming regions. Impact on volatile abundances and C/O ratios of planet-building material. Proceedings of the International Astronomical Union, 2017, 13, 69-72.	0.0	0
128	Chemistry in carbon-rich protoplanetary disks: Effect of carbon grain destruction. Proceedings of the International Astronomical Union, 2018, 14, 289-290.	0.0	0
129	ALMA observations of sulfur-bearing molecules in protoplanetary disks. Proceedings of the International Astronomical Union, 2018, 14, 360-361.	0.0	0
130	Possibility to locate the position of the H₂O snowline in protoplanetary disks through spectroscopic observations. Proceedings of the International Astronomical Union, 2018, 14, 393-395.	0.0	0
131	Complex organic molecules tracing the comet-forming zones in protoplanetary disks. Proceedings of the International Astronomical Union, 2019, 15, 463-464.	0.0	0
132	Molecular line emission from planet-forming Herbig Ae disks. Proceedings of the International Astronomical Union, 2019, 15, 384-385.	0.0	0
133	Tracing the disk, envelope and outflow cavity of VLA1623 with ALMA. EAS Publications Series, 2015, 75-76, 287-288.	0.3	0
134	Water transport from collapsing prestellar cores to forming disks: evolution of the HDO/H2O ratio. EAS Publications Series, 2015, 75-76, 259-263.	0.3	0