Matthew Bate

List of Publications by Year in descending order

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20961 19657 14,256 150 61 115 citations h-index g-index papers 153 153 153 4761 docs citations times ranked citing authors all docs

#	Article	IF	CITATIONS
1	On the origin of magnetic fields in stars – II. The effect of numerical resolution. Monthly Notices of the Royal Astronomical Society, 2022, 511, 746-764.	4.4	9
2	Supernovae and photoionizing feedback in spiral arm molecular clouds. Monthly Notices of the Royal Astronomical Society, 2022, 513, 2088-2099.	4.4	8
3	Dust coagulation during the early stages of star formation: molecular cloud collapse and first hydrostatic core evolution. Monthly Notices of the Royal Astronomical Society, 2022, 514, 2145-2161.	4.4	21
4	The impact of non-ideal magnetohydrodynamic processes on discs, outflows, counter-rotation, and magnetic walls during the early stages of star formation. Monthly Notices of the Royal Astronomical Society, 2021, 507, 2354-2372.	4.4	18
5	The statistical properties of protostellar discs and their dependence on metallicity. Monthly Notices of the Royal Astronomical Society, 2021, 508, 5279-5295.	4.4	8
6	The formation of massive stellar clusters in converging galactic flows with photoionization. Monthly Notices of the Royal Astronomical Society, 2021, 509, 954-973.	4.4	18
7	Photoionizing feedback in spiral arm molecular clouds. Monthly Notices of the Royal Astronomical Society, 2020, 495, 1672-1691.	4.4	21
8	A triple-star system with a misaligned and warped circumstellar disk shaped by disk tearing. Science, 2020, 369, 1233-1238.	12.6	63
9	Synthetic molecular line observations of the first hydrostatic core from chemical calculations. Monthly Notices of the Royal Astronomical Society, 2019, 487, 2853-2873.	4.4	7
10	There is no magnetic braking catastrophe: low-mass star cluster and protostellar disc formation with non-ideal magnetohydrodynamics. Monthly Notices of the Royal Astronomical Society, 2019, 489, 1719-1741.	4.4	54
11	The statistical properties of stars and their dependence on metallicity. Monthly Notices of the Royal Astronomical Society, 2019, 484, 2341-2361.	4.4	64
12	The collapse of a molecular cloud core to stellar densities using radiation non-ideal magnetohydrodynamics. Monthly Notices of the Royal Astronomical Society, 2018, 475, 1859-1880.	4.4	47
13	Intracluster age gradients in numerous young stellar clusters. Monthly Notices of the Royal Astronomical Society, 2018, 476, 1213-1223.	4.4	29
14	Young star clusters in nearby molecular clouds. Monthly Notices of the Royal Astronomical Society, 2018, 477, 298-324.	4.4	21
15	Sink particle radiative feedback in smoothed particle hydrodynamics models of star formation. Monthly Notices of the Royal Astronomical Society, 2018, 480, 2562-2577.	4.4	12
16	Circumstellar disc lifetimes in numerous galactic young stellar clusters. Monthly Notices of the Royal Astronomical Society, 2018, 477, 5191-5206.	4.4	81
17	On the origin of magnetic fields in stars. Monthly Notices of the Royal Astronomical Society, 2018, 481, 2450-2457.	4.4	24
18	Hall effect-driven formation of gravitationally unstable discs in magnetized molecular cloud cores. Monthly Notices of the Royal Astronomical Society, 2018, 480, 4434-4442.	4.4	24

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19	Shaken and stirred: the effects of turbulence and rotation on disc and outflow formation during the collapse of magnetized molecular cloud cores. Monthly Notices of the Royal Astronomical Society, 2018, 477, 4241-4256.	4.4	18
20	On the diversity and statistical properties of protostellar discs. Monthly Notices of the Royal Astronomical Society, 2018, 475, 5618-5658.	4.4	213
21	What can the SEDs of first hydrostatic core candidates reveal about their nature?. Monthly Notices of the Royal Astronomical Society, 2018, 474, 800-823.	4.4	9
22	The effect of extreme ionization rates during the initial collapse of a molecular cloud core. Monthly Notices of the Royal Astronomical Society, 2018, 476, 2063-2074.	4.4	26
23	On the dynamics of dust during protostellar collapse. Monthly Notices of the Royal Astronomical Society, 2017, 465, 1089-1094.	4.4	35
24	Does turbulence determine the initial mass function?. Monthly Notices of the Royal Astronomical Society, 2017, 465, 105-110.	4.4	17
25	Dust-trapping Vortices and a Potentially Planet-triggered Spiral Wake in the Pre-transitional Disk of V1247 Orionis. Astrophysical Journal Letters, 2017, 848, L11.	8.3	64
26	The dependence of protostar formation on the geometry and strength of the initial magnetic field. Monthly Notices of the Royal Astronomical Society, 2017, 467, 3324-3337.	4.4	27
27	Star Formation In Nearby Clouds (SFiNCs): X-Ray and Infrared Source Catalogs and Membership. Astrophysical Journal, Supplement Series, 2017, 229, 28.	7.7	44
28	The impact of non-ideal magnetohydrodynamics on binary star formation. Monthly Notices of the Royal Astronomical Society, 2017, 466, 1788-1804.	4.4	33
29	Erratum and Addendum: Smoothed particle magnetohydrodynamic simulations of protostellar outflows with misaligned magnetic field and rotation axes. Monthly Notices of the Royal Astronomical Society, 2017, 464, 2499-2501.	4.4	1
30	Planet Formation Imager (PFI): science vision and key requirements. , 2016, , .		7
31	Constrained hyperbolic divergence cleaning in smoothed particle magnetohydrodynamics with variable cleaning speeds. Journal of Computational Physics, 2016, 322, 326-344.	3.8	43
32	Magnetic field evolution and reversals in spiral galaxies. Monthly Notices of the Royal Astronomical Society, 2016, 461, 4482-4495.	4.4	18
33	Toroidal vortices as a solution to the dust migration problem. Monthly Notices of the Royal Astronomical Society: Letters, 2016, 457, L54-L58.	3.3	14
34	Can non-ideal magnetohydrodynamics solve the magnetic braking catastrophe?. Monthly Notices of the Royal Astronomical Society, 2016, 457, 1037-1061.	4.4	115
35	THE SPATIAL STRUCTURE OF YOUNG STELLAR CLUSTERS. III. PHYSICAL PROPERTIES AND EVOLUTIONARY STATES. Astrophysical Journal, 2015, 812, 131.	4.5	36
36	The morphology of the Milky Way – II. Reconstructing CO maps from disc galaxies with live stellar distributions. Monthly Notices of the Royal Astronomical Society, 2015, 449, 3911-3926.	4.4	42

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37	Toroidal vortices and the conglomeration of dust into rings in protoplanetary discs. Monthly Notices of the Royal Astronomical Society: Letters, 2015, 453, L78-L82.	3.3	38
38	Smoothed particle magnetohydrodynamic simulations of protostellar outflows with misaligned magnetic field and rotation axes. Monthly Notices of the Royal Astronomical Society, 2015, 451, 288-299.	4.4	32
39	Two-fluid dust and gas mixtures in smoothed particle hydrodynamics II: an improved semi-implicit approach. Monthly Notices of the Royal Astronomical Society, 2015, 454, 4114-4119.	4.4	28
40	Combining radiative transfer and diffuse interstellar medium physics to model star formation. Monthly Notices of the Royal Astronomical Society, 2015, 449, 2643-2667.	4.4	30
41	The statistical properties of stars and their dependence on metallicity: the effects of opacity. Monthly Notices of the Royal Astronomical Society, 2014, 442, 285-313.	4.4	82
42	Two-fluid dust and gas mixtures in smoothed particle hydrodynamics: a semi-implicit approach. Monthly Notices of the Royal Astronomical Society, 2014, 443, 927-945.	4.4	39
43	THE SPATIAL STRUCTURE OF YOUNG STELLAR CLUSTERS. I. SUBCLUSTERS. Astrophysical Journal, 2014, 787, 107.	4.5	114
44	The science case for the Planet Formation Imager (PFI). Proceedings of SPIE, 2014, , .	0.8	10
45	Collapse of a molecular cloud core to stellar densities: stellar-core and outflow formation in radiation magnetohydrodynamic simulations. Monthly Notices of the Royal Astronomical Society, 2014, 437, 77-95.	4.4	103
46	Modelling Magnetised Protostellar Jets with SPH. Thirty Years of Astronomical Discovery With UKIRT, 2014, , 101-104.	0.3	0
47	OVERVIEW OF THE MASSIVE YOUNG STAR-FORMING COMPLEX STUDY IN INFRARED AND X-RAY (MYStIX) PROJECT. Astrophysical Journal, Supplement Series, 2013, 209, 26.	7.7	104
48	The growth and hydrodynamic collapse of a protoplanet envelope. Monthly Notices of the Royal Astronomical Society, 2012, 427, 2597-2612.	4.4	64
49	On the convergence of the critical cooling time-scale for the fragmentation of self-gravitating discs. Monthly Notices of the Royal Astronomical Society, 2012, 427, 2022-2046.	4.4	125
50	Stellar, brown dwarf and multiple star properties from a radiation hydrodynamical simulation of star cluster formation. Monthly Notices of the Royal Astronomical Society, 2012, 419, 3115-3146.	4.4	442
51	Collimated jets from the first core. Monthly Notices of the Royal Astronomical Society: Letters, 2012, 423, L45-L49.	3.3	65
52	On the accumulation of planetesimals near disc gaps created by protoplanets. Monthly Notices of the Royal Astronomical Society, 2012, 423, 1450-1462.	4.4	81
53	Spatially resolved submillimeter imaging of the HR 8799 debris disk. Astronomy and Astrophysics, 2011, 531, L17.	5.1	23
54	On the fragmentation criteria of self-gravitating protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2011, 410, 559-572.	4.4	84

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55	The efficiency of star formation in clustered and distributed regions. Monthly Notices of the Royal Astronomical Society, 2011, 410, 2339-2346.	4.4	99
56	Migration of protoplanets with surfaces through discs with steep temperature gradients. Monthly Notices of the Royal Astronomical Society, 2011, 415, 576-586.	4.4	32
57	Collapse of a molecular cloud core to stellar densities: the formation and evolution of pre-stellar discs. Monthly Notices of the Royal Astronomical Society, 2011, 417, 2036-2056.	4.4	79
58	Non-convergence of the critical cooling time-scale for fragmentation of self-gravitating discs. Monthly Notices of the Royal Astronomical Society: Letters, 2011, 411, L1-L5.	3.3	104
59	Dependence of star formation on initial conditions and molecular cloud structure. Proceedings of the International Astronomical Union, 2010, 6, 133-140.	0.0	0
60	Non-convergence of the critical cooling timescale for fragmentation of self-gravitating discs. Proceedings of the International Astronomical Union, 2010, 6, 438-440.	0.0	1
61	Magnetic fields and radiative feedback in the star formation process. , 2010, , .		0
62	Collapse of a molecular cloud core to stellar densities: the radiative impact of stellar core formation on the circumstellar disc. Monthly Notices of the Royal Astronomical Society: Letters, 2010, 404, L79-L83.	3.3	60
63	Planet migration: self-gravitating radiation hydrodynamical models of protoplanets with surfaces. Monthly Notices of the Royal Astronomical Society, 2010, 408, 876-896.	4.4	48
64	Chaotic star formation and the alignment of stellar rotation with disc and planetary orbital axes. Monthly Notices of the Royal Astronomical Society, 2010, 401, 1505-1513.	4.4	288
65	Three-dimensional molecular line transfer: a simulated star-forming region. Monthly Notices of the Royal Astronomical Society, 2010, 407, 986-1002.	4.4	33
66	Exploring the conditions required to form giant planets via gravitational instability in massive protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2010, 406, 2279-2288.	4.4	84
67	Gas accretion by planetary cores. , 2009, , .		0
68	Self-gravitating disks with Radiative Transfer: Their role in Giant Planet Formation. , 2009, , .		0
69	Stellar, brown dwarf and multiple star properties from hydrodynamical simulations of star cluster formation. Monthly Notices of the Royal Astronomical Society, 2009, 392, 590-616.	4.4	359
70	Gas accretion on to planetary cores: three-dimensional self-gravitating radiation hydrodynamical calculations. Monthly Notices of the Royal Astronomical Society, 2009, 393, 49-64.	4.4	97
71	The dependence of star formation on initial conditions and molecular cloud structure. Monthly Notices of the Royal Astronomical Society, 2009, 397, 232-248.	4.4	81
72	Circumplanetary disc properties obtained from radiation hydrodynamical simulations of gas accretion by protoplanets. Monthly Notices of the Royal Astronomical Society, 2009, 397, 657-665.	4.4	126

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73	The importance of radiative feedback for the stellar initial mass function. Monthly Notices of the Royal Astronomical Society, 2009, 392, 1363-1380.	4.4	226
74	Inefficient star formation: the combined effects of magnetic fields and radiative feedback. Monthly Notices of the Royal Astronomical Society, 2009, 398, 33-46.	4.4	108
75	Stellar and brown dwarf properties from numerical simulations. Proceedings of the International Astronomical Union, 2009, 5, 769-770.	0.0	0
76	Physics and modes of star cluster formation. Proceedings of the International Astronomical Union, 2009, 5, 29-34.	0.0	0
77	The effect of magnetic fields on star cluster formation. Monthly Notices of the Royal Astronomical Society, 2008, 385, 1820-1834.	4.4	142
78	Gravitational fragmentation and the formation of brown dwarfs in stellar clusters. Monthly Notices of the Royal Astronomical Society, 2008, 389, 1556-1562.	4.4	149
79	On the relative motions of dense cores and envelopes in star-forming molecular clouds. Monthly Notices of the Royal Astronomical Society, 2007, 374, 1198-1206.	4.4	15
80	The impact of magnetic fields on single and binary star formation. Monthly Notices of the Royal Astronomical Society, 2007, 377, 77-90.	4.4	198
81	The effect of magnetic fields on the formation of circumstellar discs around young stars. Astrophysics and Space Science, 2007, 311, 75-80.	1.4	35
82	The thermodynamics of collapsing molecular cloud cores using smoothed particle hydrodynamics with radiative transfer. Monthly Notices of the Royal Astronomical Society, 2006, 367, 32-38.	4.4	153
83	The Jeans mass and the origin of the knee in the IMF. Monthly Notices of the Royal Astronomical Society, 2006, 368, 1296-1300.	4.4	91
84	Star formation through gravitational collapse and competitive accretion. Monthly Notices of the Royal Astronomical Society, 2006, 370, 488-494.	4.4	321
85	Evolution of Giant Planets in Eccentric Disks. Astrophysical Journal, 2006, 652, 1698-1714.	4.5	126
86	The origin of the initial mass function and its dependence on the mean Jeans mass in molecular clouds. Monthly Notices of the Royal Astronomical Society, 2005, 356, 1201-1221.	4.4	285
87	Photoionizing feedback in star cluster formation. Monthly Notices of the Royal Astronomical Society, 2005, 358, 291-304.	4.4	159
88	The dependence of protoplanet migration rates on co-orbital torques. Monthly Notices of the Royal Astronomical Society, 2005, 358, 316-332.	4.4	73
89	Star formation in unbound giant molecular clouds: the origin of OB associations?. Monthly Notices of the Royal Astronomical Society, 2005, 359, 809-818.	4.4	94
90	Binary systems and stellar mergers in massive star formation. Monthly Notices of the Royal Astronomical Society, 2005, 362, 915-920.	4.4	123

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91	The dependence of the initial mass function on metallicity and the opacity limit for fragmentation. Monthly Notices of the Royal Astronomical Society, 2005, 363, 363-378.	4.4	58
92	A faster algorithm for smoothed particle hydrodynamics with radiative transfer in the flux-limited diffusion approximation. Monthly Notices of the Royal Astronomical Society, 2005, 364, 1367-1377.	4.4	94
93	The Dependence of the IMF on Initial Conditions. , 2005, , 431-436.		1
94	The Formation of Binary and Multiple Stars in Clusters. International Astronomical Union Colloquium, 2004, 191, 175-183.	0.1	0
95	Theory of Young Clusters. Symposium - International Astronomical Union, 2004, 221, 257-264.	0.1	0
96	The dependence of the substellar initial mass function on the initial conditions for star formation. Monthly Notices of the Royal Astronomical Society, 2004, 347, 759-770.	4.4	60
97	Massive star formation: nurture, not nature. Monthly Notices of the Royal Astronomical Society, 2004, 349, 735-741.	4.4	303
98	On the properties of young multiple stars. Monthly Notices of the Royal Astronomical Society, 2004, 351, 617-629.	4.4	101
99	Synthetic infrared images and spectral energy distributions of a young low-mass stellar cluster. Monthly Notices of the Royal Astronomical Society, 2004, 351, 1134-1150.	4.4	61
100	Smoothed particle hydrodynamics with radiative transfer in the flux-limited diffusion approximation. Monthly Notices of the Royal Astronomical Society, 2004, 353, 1078-1094.	4.4	70
101	From Molecular Cores to Stars and Brown Dwarfs. Astrophysics and Space Science, 2004, 292, 297-307.	1.4	2
102	From Molecular Cores to Stars and Brown Dwarfs. , 2004, , 211-221.		0
103	Astrometric signatures of self-gravitating protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2003, 338, 227-232.	4.4	41
104	The formation of a star cluster: predicting the properties of stars and brown dwarfs. Monthly Notices of the Royal Astronomical Society, 2003, 339, 577-599.	4.4	620
105	The effect of cooling on the global stability of self-gravitating protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2003, 339, 1025-1030.	4.4	235
106	Hydrodynamical simulations of a cloud of interacting gas fragments. Monthly Notices of the Royal Astronomical Society, 2003, 340, 841-850.	4.4	10
107	Three-dimensional calculations of high- and low-mass planets embedded in protoplanetary discs. Monthly Notices of the Royal Astronomical Society, 2003, 341, 213-229.	4.4	228
108	Accretion and dynamical interactions in small-Nstar-forming clusters:N= 5. Monthly Notices of the Royal Astronomical Society, 2003, 342, 926-938.	4.4	69

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109	The hierarchical formation of a stellar cluster. Monthly Notices of the Royal Astronomical Society, 2003, 343, 413-418.	4.4	343
110	Are there brown dwarfs in globular clusters?. Monthly Notices of the Royal Astronomical Society, 2003, 343, L53-L57.	4.4	5
111	Substellar companions and isolated planetary-mass objects from protostellar disc fragmentation. Monthly Notices of the Royal Astronomical Society, 2003, 346, L36-L40.	4.4	87
112	The Formation Mechanism and Resulting Properties of Brown Dwarfs. Symposium - International Astronomical Union, 2003, 211, 27-30.	0.1	1
113	High-resolution simulations of stellar collisions between equal-mass main-sequence stars in globular clusters. Monthly Notices of the Royal Astronomical Society, 2002, 332, 49-54.	4.4	44
114	The excitation, propagation and dissipation of waves in accretion discs: the non-linear axisymmetric case. Monthly Notices of the Royal Astronomical Society, 2002, 332, 575-600.	4.4	44
115	Dust dynamics in dense molecular cores. Monthly Notices of the Royal Astronomical Society, 2002, 333, 679-686.	4.4	12
116	The formation mechanism of brown dwarfs. Monthly Notices of the Royal Astronomical Society, 2002, 332, L65-L68.	4.4	324
117	The formation of close binary systems by dynamical interactions and orbital decay. Monthly Notices of the Royal Astronomical Society, 2002, 336, 705-713.	4.4	248
118	Accretion in stellar clusters and the collisional formation of massive stars. Monthly Notices of the Royal Astronomical Society, 2002, 336, 659-669.	4.4	163
119	Viscous effects on the interaction between the coplanar decretion disc and the neutron star in Be/X-ray binaries. Monthly Notices of the Royal Astronomical Society, 2002, 337, 967-980.	4.4	142
120	The Formation of a Cluster of Stars and Brown Dwarfs in a Turbulent Molecular Cloud. Globular Clusters - Guides To Galaxies, 2002, , 138-145.	0.1	0
121	Accretion and the Properties of Protobinary Systems. Symposium - International Astronomical Union, 2001, 200, 429-438.	0.1	1
122	Binary formation in stellar clusters. Monthly Notices of the Royal Astronomical Society, 2001, 321, 585-592.	4.4	15
123	Competitive accretion in embedded stellar clusters. Monthly Notices of the Royal Astronomical Society, 2001, 323, 785-794.	4.4	456
124	Accretion in stellar clusters and the initial mass function. Monthly Notices of the Royal Astronomical Society, 2001, 324, 573-579.	4.4	193
125	Predicting the properties of binary stellar systems: the evolution of accreting protobinary systems. Monthly Notices of the Royal Astronomical Society, 2000, 314, 33-53.	4.4	210
126	Observational implications of precessing protostellar discs and jets. Monthly Notices of the Royal Astronomical Society, 2000, 317, 773-781.	4.4	152

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127	Interpreting the mean surface density of companions in star-forming regions. Monthly Notices of the Royal Astronomical Society, 1998, 297, 1163-1181.	4.4	83
128	On the formation of massive stars. Monthly Notices of the Royal Astronomical Society, 1998, 298, 93-102.	4.4	483
129	Collapse of a Molecular Cloud Core to Stellar Densities: The First Three-dimensional Calculations. Astrophysical Journal, 1998, 508, L95-L98.	4.5	183
130	Fragmentation of Molecular Clouds: The Initial Phase of a Stellar Cluster. Astrophysical Journal, 1998, 501, L205-L208.	4.5	155
131	Protostellar fragmentation in a power-law density distribution. Monthly Notices of the Royal Astronomical Society, 1997, 289, 497-504.	4.4	100
132	Accretion and the stellar mass spectrum in small clusters. Monthly Notices of the Royal Astronomical Society, 1997, 285, 201-208.	4.4	285
133	Resolution requirements for smoothed particle hydrodynamics calculations with self-gravity. Monthly Notices of the Royal Astronomical Society, 1997, 288, 1060-1072.	4.4	455
134	Accretion during binary star formation – II. Gaseous accretion and disc formation. Monthly Notices of the Royal Astronomical Society, 1997, 285, 33-48.	4.4	247
135	The stability of accreting triples. Monthly Notices of the Royal Astronomical Society, 1997, 288, 1041-1048.	4.4	19
136	Disc formation in protobinary systems. AIP Conference Proceedings, 1997, , .	0.4	0
137	The Effects of Accretion during Binary Star Formation. Astrophysics and Space Science Library, 1997, , 153-164.	2.7	0
138	The Effect of Accretion on Young Hierarchical Triple Systems. Astrophysics and Space Science Library, 1997, , 145-151.	2.7	0
139	protostellar envelopes: a clue to the initial conditions of star formation. Monthly Notices of the Royal Astronomical Society, 1996, 279, 121-128.	4.4	14
140	Modelling accretion in protobinary systems. Monthly Notices of the Royal Astronomical Society, 1995, 277, 362-376.	4.4	696
141	Massive circumbinary discs and the formation of multiple systems. Monthly Notices of the Royal Astronomical Society, 1994, 269, L45-L48.	4.4	109
142	The formation of close binary systems. Monthly Notices of the Royal Astronomical Society, 1994, 271, 999-1004.	4.4	135
143	Deep inelastic scattering from non-topological solitons. Journal of Physics G: Nuclear and Particle Physics, 1992, 18, 1875-1888.	3.6	9
144	The Formation of a Cluster of Stars and Brown Dwarfs in a Turbulent Molecular Cloud., 0,, 139-146.		0

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145	The brown dwarf–planet relation. , 0, , 236-249.		0
146	Stellar encounters involving massive stars in young clusters. Monthly Notices of the Royal Astronomical Society, 0, 370, 2038-2046.	4.4	13
147	Simulations of the grand design galaxy M51: a case study for analysing tidally induced spiral structure. Monthly Notices of the Royal Astronomical Society, 0, 403, 625-645.	4.4	139
148	On the evolution of a star cluster and its multiple stellar systems following gas dispersal. Monthly Notices of the Royal Astronomical Society, 0, 404, 721-737.	4.4	152
149	The dependence of stellar properties on initial cloud density. Monthly Notices of the Royal Astronomical Society, 0, , .	4.4	7
150	Disc formation and fragmentation using radiative non-ideal magnetohydrodynamics. Monthly Notices of the Royal Astronomical Society, 0, , .	4.4	31