Alfonso Ganan-Calvo

List of Publications by Citations

156 papers	7,156 citations	42 h-index	81 g-index
171 ext. papers	7,984 ext. citations	4.6 avg, IF	6.28 L-index

#	Paper	IF	Citations
156	Micro/nano encapsulation via electrified coaxial liquid jets. *Science*, **2002**, 295, 1695-8	33.3	843
155	Current and droplet size in the electrospraying of liquids. Scaling laws. *Journal of Aerosol Science*, **1997**, 28, 249-275	4.3	610
154	Perfectly monodisperse microbubbling by capillary flow focusing. *Physical Review Letters*, **2001**, 87, 274501	7.4	440
153	Generation of Steady Liquid Microthreads and Micron-Sized Monodisperse Sprays in Gas Streams. *Physical Review Letters*, **1998**, 80, 285-288	7.4	401
152	Cone-Jet Analytical Extension of Taylor's Electrostatic Solution and the Asymptotic Universal Scaling Laws in Electrospraying. *Physical Review Letters*, **1997**, 79, 217-220	7.4	268
151	Active droplet sorting in microfluidics: a review. *Lab on A Chip*, **2017**, 17, 751-771	7.2	177
150	Flow Focusing: a versatile technology to produce size-controlled and specific-morphology microparticles. *Small*, **2005**, 1, 688-92	11	167
149	THE SURFACE CHARGE IN ELECTROSPRAYING: ITS NATURE AND ITS UNIVERSAL SCALING LAWS. *Journal of Aerosol Science*, **1999**, 30, 863-872	4.3	162
148	Active droplet generation in microfluidics. *Lab on A Chip*, **2016**, 16, 35-58	7.2	159
147	On the theory of electrohydrodynamically driven capillary jets. *Journal of Fluid Mechanics*, **1997**, 335, 165-188	3.7	130
146	Revision of capillary cone-jet physics: electrospray and flow focusing. *Physical Review E*, **2009**, 79, 066305	2.4	124
145	The electrostatic spray emitted from an electrified conical meniscus. *Journal of Aerosol Science*, **1994**, 25, 1121-1142	4.3	123
144	On the general scaling theory for electrospraying. *Journal of Fluid Mechanics*, **2004**, 507, 203-212	3.7	111
143	Review on the physics of electrospray: From electrokinetics to the operating conditions of single and coaxial Taylor cone-jets, and AC electrospray. *Journal of Aerosol Science*, **2018**, 125, 32-56	4.3	106
142	Megahertz serial crystallography. *Nature Communications*, **2018**, 9, 4025	17.4	104
141	Zeroth-order, electrohydrostatic solution for electrospraying in cone-jet mode. *Journal of Aerosol Science*, **1994**, 25, 1065-1077	4.3	99
140	Focusing capillary jets close to the continuum limit. *Nature Physics*, **2007**, 3, 737-742	16.2	96

139	Enhanced liquid atomization: From flow-focusing to flow-blurring. *Applied Physics Letters*, **2005**, 86, 214101	3.4	96
138	A new device for the generation of microbubbles. *Physics of Fluids*, **2004**, 16, 2828-2834	4.4	89
137	Perfectly monodisperse microbubbling by capillary flow focusing: an alternate physical description and universal scaling. *Physical Review E*, **2004**, 69, 027301	2.4	89
136	Jetting–dripping transition of a liquid jet in a lower viscosity co-flowing immiscible liquid: the minimum flow rate in flow focusing. *Journal of Fluid Mechanics*, **2006**, 553, 75	3.7	80
135	Building functional materials for health care and pharmacy from microfluidic principles and Flow Focusing. *Advanced Drug Delivery Reviews*, **2013**, 65, 1447-69	18.5	75
134	A novel pneumatic technique to generate steady capillary microjets. *Journal of Aerosol Science*, **1999**, 30, 117-125	4.3	67
133	Towards High-Throughput Production of Uniformly Encoded Microparticles. *Advanced Materials*, **2006**, 18, 559-564	24	66
132	Synthesis of lidocaine-loaded PLGA microparticles by flow focusing. Effects on drug loading and release properties. *International Journal of Pharmaceutics*, **2008**, 358, 27-35	6.5	65
131	Linear stability of co-flowing liquid–gas jets. *Journal of Fluid Mechanics*, **2001**, 448, 23-51	3.7	65
130	Global and local instability of flow focusing: The influence of the geometry. *Physics of Fluids*, **2010**, 22, 064105	4.4	63
129	A note on charged capillary jet breakup of conducting liquids: experimental validation of a viscous one-dimensional model. *Journal of Fluid Mechanics*, **2004**, 501, 303-326	3.7	63
128	Liquid flow focused by a gas: jetting, dripping, and recirculation. *Physical Review E*, **2008**, 78, 036323	2.4	62
127	ONE-DIMENSIONAL SIMULATION OF THE BREAKUP OF CAPILLARY JETS OF CONDUCTING LIQUIDS. APPLICATION TO E.H.D. SPRAYING. *Journal of Aerosol Science*, **1999**, 30, 895-912	4.3	59
126	Linear stability analysis of axisymmetric perturbations in imperfectly conducting liquid jets. *Physics of Fluids*, **2005**, 17, 034106	4.4	58
125	The minimum or natural rate of flow and droplet size ejected by Taylor cone–jets: physical symmetries and scaling laws. *New Journal of Physics*, **2013**, 15, 033035	2.9	54
124	The combination of electrospray and flow focusing. *Journal of Fluid Mechanics*, **2006**, 566, 421	3.7	51
123	Revision of Bubble Bursting: Universal Scaling Laws of Top Jet Drop Size and Speed. *Physical Review Letters*, **2017**, 119, 204502	7.4	50
122	Low and high Reynolds number flows inside Taylor cones. *Physical Review E*, **1998**, 58, 7309-7314	2.4	50

121	The role of the electrical conductivity and viscosity on the motions inside Taylor cones. *Journal of Electrostatics*, **1999**, 47, 13-26	1.7	49
120	On the dynamics of buoyant and heavy particles in a periodic Stuart vortex flow. *Journal of Fluid Mechanics*, **1993**, 254, 671-699	3.7	48
119	Numerical simulation of electrospray in the cone-jet mode. *Physical Review E*, **2012**, 86, 026305	2.4	47
118	Monodisperse structured multi-vesicle microencapsulation using flow-focusing and controlled disturbance. *Journal of Microencapsulation*, **2005**, 22, 745-59	3.4	45
117	Bubbling in unbounded coflowing liquids. *Physical Review Letters*, **2006**, 96, 124504	7.4	44
116	Monodisperse microbubbling: Absolute instabilities in coflowing gas–liquid jets. *Physics of Fluids*, **2001**, 13, 3839-3842	4.4	44
115	Dripping, jetting and tip streaming. *Reports on Progress in Physics*, **2020**, 83, 097001	14.4	43
114	The dynamics and mixing of small spherical particles in a plane, free shear layer. *Physics of Fluids A, Fluid Dynamics*, **1991**, 3, 1207-1217		41
113	The onset of electrospray: the universal scaling laws of the first ejection. *Scientific Reports*, **2016**, 6, 32357	4.9	40
112	20.O.05 The size and charge of droplets in the electrospraying of polar liquids in cone-jet mode, and the minimum droplet size. *Journal of Aerosol Science*, **1994**, 25, 309-310	4.3	38
111	Analysis of the dripping–jetting transition in compound capillary jets. *Journal of Fluid Mechanics*, **2010**, 649, 523-536	3.7	37
110	Global stability of the focusing effect of fluid jet flows. *Physical Review E*, **2011**, 83, 036309	2.4	37
109	Turbulence in pneumatic flow focusing and flow blurring regimes. *Physical Review E*, **2008**, 77, 036321	2.4	37
108	Rapid sample delivery for megahertz serial crystallography at X-ray FELs. *IUCrJ*, **2018**, 5, 574-584	4.7	37
107	Spatiotemporal instability of a confined capillary jet. *Physical Review E*, **2008**, 78, 046312	2.4	35
106	Electro-flow focusing: the high-conductivity low-viscosity limit. *Physical Review Letters*, **2007**, 98, 134503	7.4	35
105	Polarity effect on the electrohydrodynamic (EHD) spray of water. *Journal of Aerosol Science*, **2014**, 76, 98-114	4.3	33
104	Acoustofluidic control of bubble size in microfluidic flow-focusing configuration. *Lab on A Chip*, **2015**, 15, 996-9	7.2	31

103	Coarsening of monodisperse wet microfoams. *Applied Physics Letters*, **2004**, 84, 4989-4991	3.4	29
102	Liquid capillary micro/nanojets in free-jet expansion. *Small*, **2010**, 6, 822-4	11	28
101	Production of High Performance Bioinspired Silk Fibers by Straining Flow Spinning. *Biomacromolecules*, **2017**, 18, 1127-1133	6.9	27
100	Breakup length of AC electrified jets in a microfluidic flow-focusing junction. *Microfluidics and Nanofluidics*, **2015**, 19, 787-794	2.8	27
99	Focusing liquid microjets with nozzles. *Journal of Micromechanics and Microengineering*, **2012**, 22, 065011	2	26
98	Absolute and convective instability of a charged viscoelastic liquid jet. *Journal of Non-Newtonian Fluid Mechanics*, **2013**, 196, 58-69	2.7	25
97	Electrokinetic effects in the breakup of electrified jets: A Volume-Of-Fluid numerical study. *International Journal of Multiphase Flow*, **2015**, 71, 14-22	3.6	25
96	Universal size and shape of viscous capillary jets: application to gas-focused microjets. *Journal of Fluid Mechanics*, **2011**, 670, 427-438	3.7	25
95	The dynamics of small, heavy, rigid spherical particles in a periodic Stuart vortex flow. *Physics of Fluids A, Fluid Dynamics*, **1993**, 5, 1679-1693		25
94	A new flow focusing technique to produce very thin jets. *Journal of Micromechanics and Microengineering*, **2013**, 23, 065009	2	24
93	Unconditional jetting. *Physical Review E*, **2008**, 78, 026304	2.4	24
92	Automated droplet measurement (ADM): an enhanced video processing software for rapid droplet measurements. *Microfluidics and Nanofluidics*, **2016**, 20, 1	2.8	24
91	Flow focusing pneumatic nebulizer in comparison with several micronebulizers in inductively coupled plasma atomic emission spectrometry. *Journal of Analytical Atomic Spectrometry*, **2006**, 21, 770-777	3.7	22
90	Straightforward production of encoded microbeads by Flow Focusing: potential applications for biomolecule detection. *International Journal of Pharmaceutics*, **2006**, 324, 19-26	6.5	22
89	Steady high viscosity liquid micro-jet production and fiber spinning using co-flowing gas conformation. *European Physical Journal B*, **2004**, 39, 131-137	1.2	22
88	Preliminary characterization and fundamental properties of aerosols generated by a flow focusing pneumatic nebulizer. *Journal of Analytical Atomic Spectrometry*, **2004**, 19, 1340-1346	3.7	22
87	A novel technique to produce metallic microdrops for additive manufacturing. *International Journal of Advanced Manufacturing Technology*, **2014**, 70, 1395-1402	3.2	21
86	Micrometer glass nozzles for flow focusing. *Journal of Micromechanics and Microengineering*, **2010**, 20, 075035	2	19

85	Absolute-convective instability transition of low permittivity, low conductivity charged viscous liquid jets under axial electric fields. *Physics of Fluids*, **2011**, 23, 094108	4.4	18
84	Integrable silicon microfluidic valve with pneumatic actuation. *Sensors and Actuators A: Physical*, **2005**, 118, 144-151	3.9	18
83	Low temperature plasmas and electrosprays. *Journal Physics D: Applied Physics*, **2019**, 52, 233001	3	17
82	Development and characterization of a Flow Focusing multi nebulization system for sample introduction in ICP-based spectrometric techniques. *Journal of Analytical Atomic Spectrometry*, **2009**, 24, 1213	3.7	17
81	Oscillations of liquid captive rotating drops. *Journal of Fluid Mechanics*, **1991**, 226, 63-89	3.7	17
80	Absolute to convective instability transition in charged liquid jets. *Physics of Fluids*, **2010**, 22, 062002	4.4	16
79	04 O 01 The electrohydrodynamics of electrified conical menisci. *Journal of Aerosol Science*, **1993**, 24, S19-S20	4.3	16
78	The steady cone-jet mode of electrospraying close to the minimum volume stability limit. *Journal of Fluid Mechanics*, **2018**, 857, 142-172	3.7	16
77	Global stability of axisymmetric flow focusing. *Journal of Fluid Mechanics*, **2017**, 832, 329-344	3.7	15
76	On the validity of a universal solution for viscous capillary jets. *Physics of Fluids*, **2011**, 23, 122103	4.4	15
75	Silicon Microdevice for Emulsion Production Using Three-Dimensional Flow Focusing. *Journal of Microelectromechanical Systems*, **2007**, 16, 1201-1208	2.5	15
74	Behaviour of a flow focusing pneumatic nebulizer with high total dissolved solids solution on radially- and axially-viewed inductively coupled plasma atomic emission spectrometry. *Journal of Analytical Atomic Spectrometry*, **2006**, 21, 1072-1075	3.7	15
73	Monosized dripping mode of axisymmetric flow focusing. *Physical Review E*, **2016**, 94, 053122	2.4	15
72	Stability of a rivulet flowing in a microchannel. *International Journal of Multiphase Flow*, **2015**, 69, 1-7	3.6	14
71	Comparison of the effects of post-spinning drawing and wet stretching on regenerated silk fibers produced through straining flow spinning. *Polymer*, **2018**, 150, 311-317	3.9	14
70	Theoretical investigation of a technique to produce microbubbles by a microfluidic T junction. *Physical Review E*, **2013**, 88, 033027	2.4	14
69	Swirl flow focusing: A novel procedure for the massive production of monodisperse microbubbles. *Physics of Fluids*, **2009**, 21, 042003	4.4	14
68	Straining flow spinning: production of regenerated silk fibers under a wide range of mild coagulating chemistries. *Green Chemistry*, **2017**, 19, 3380-3389	10	14

67	Evaluation of serial crystallographic structure determination within megahertz pulse trains. *Structural Dynamics*, **2019**, 6, 064702	3.2	14
66	A novel technique for producing metallic microjets and microdrops. *Microfluidics and Nanofluidics*, **2013**, 14, 101-111	2.8	13
65	Viscoelastic effects on the jetting□dripping transition in co-flowing capillary jets. *Journal of Fluid Mechanics*, **2008**, 610, 249-260	3.7	13
64	Absolute lateral instability in capillary coflowing jets. *Physics of Fluids*, **2010**, 22, 064104	4.4	12
63	Absolute instability of a viscous hollow jet. *Physical Review E*, **2007**, 75, 027301	2.4	12
62	A global model for the electrospraying of liquids in steady cone-jet mode. *Journal of Aerosol Science* , **1996**, 27, S179-S180	4.3	12
61	Emergence of supercontraction in regenerated silkworm (Bombyx mori) silk fibers. *Scientific Reports*, **2019**, 9, 2398	4.9	11
60	Experimental and numerical study of the recirculation flow inside a liquid meniscus focused by air. *Microfluidics and Nanofluidics*, **2011**, 11, 65-74	2.8	11
59	Enhancement of the stability of the flow focusing technique for low-viscosity liquids. *Journal of Micromechanics and Microengineering*, **2012**, 22, 115039	2	11
58	The role of liquid viscosity and electrical conductivity on the motions inside Taylor cones in E.H.D. spraying of liquids. *Journal of Aerosol Science*, **1996**, 27, S175-S176	4.3	11
57	The dynamics of bubbles in periodic vortex flowss. *Flow, Turbulence and Combustion*, **1993**, 51, 285-290		10
56	Scaling laws of top jet drop size and speed from bubble bursting including gravity and inviscid limit. *Physical Review Fluids*, **2018**, 3,	2.8	10
55	Making Drops in Microencapsulation Processes. *Letters in Drug Design and Discovery*, **2010**, 7, 300-309	0.8	10
54	Straining Flow Spinning of Artificial Silk Fibers: A Review. *Biomimetics*, **2018**, 3,	3.7	10
53	Production of microbubbles from axisymmetric flow focusing in the jetting regime for moderate Reynolds numbers. *Physical Review E*, **2014**, 89, 063012	2.4	9
52	Convective-to-absolute instability transition in a viscoelastic capillary jet subject to unrelaxed axial elastic tension. *Physical Review E*, **2015**, 92, 023006	2.4	9
51	Stability of coflowing capillary jets under nonaxisymmetric perturbations. *Physical Review E*, **2008**, 77, 046301	2.4	9
50	Flow Blurring-Enabled Production of Polymer Filaments from Poly(ethylene oxide) Solutions. *ACS Omega*, **2019**, 4, 2693-2701	3.9	8

49	Visualization and size-measurement of droplets generated by Flow Blurring in a high-pressure environment. *Aerosol Science and Technology*, **2018**, 52, 198-208	3.4	8
48	How does a shear boundary layer affect the stability of a capillary jet?. *Physics of Fluids*, **2014**, 26, 061701	4.4	8
47	Electro-hydrodynamic generation of monodisperse nanoparticles in the sub-10 nm size range from strongly electrolytic salt solutions: governing parameters of scaling laws. *Journal of Nanoparticle Research*, **2013**, 15, 1	2.3	8
46	Reduction of droplet-size dispersion in parallel flow-focusing microdevices using a passive method. *Journal of Micromechanics and Microengineering*, **2009**, 19, 045029	2	8
45	Application of Flow Focusing to the Break-Up of a Magnetite Suspension Jet for the Production of Paramagnetic Microparticles. *Journal of Nanomaterials*, **2011**, 2011, 1-10	3.2	8
44	Pressure-Driven Filling of Closed-End Microchannel: Realization of Comb-Shaped Transducers for Acoustofluidics. *Physical Review Applied*, **2018**, 10,	4.3	8
43	Straining flow spinning: Simplified model of a bioinspired process to mass produce regenerated silk fibers controllably. *European Polymer Journal*, **2017**, 97, 26-39	5.2	7
42	Effect of a Surrounding Liquid Environment on the Electrical Disruption of Pendant Droplets. *Langmuir*, **2016**, 32, 6815-24	4	7
41	The production of viscoelastic capillary jets with gaseous flow focusing. *Journal of Non-Newtonian Fluid Mechanics*, **2016**, 229, 8-15	2.7	7
40	Generation of small mono-disperse bubbles in axisymmetric T-junction: The role of swirl. *Physics of Fluids*, **2011**, 23, 072004	4.4	7
39	Flow blurring atomization of Poly(ethylene oxide) solutions below the coil overlap concentration. *Journal of Aerosol Science*, **2019**, 137, 105429	4.3	6
38	The universal nature and scaling law of the surface charge in electrospraying. *Journal of Aerosol Science*, **1998**, 29, S975-S976	4.3	6
37	A numerical simulation of coaxial electrosprays. *Journal of Fluid Mechanics*, **2020**, 885,	3.7	6
36	Aerodynamically stabilized Taylor cone jets. *Physical Review E*, **2019**, 100, 031101	2.4	5
35	Isothermal dissolution of small rising bubbles in a low viscosity liquid. *Chemical Engineering and Processing: Process Intensification*, **2014**, 85, 136-144	3.7	5
34	Massive, Generic, and Controlled Microencapsulation by Flow Focusing: Some Physicochemical Aspects and New Applications. *Journal of Flow Chemistry*, **2015**, 5, 48-54	3.3	5
33	Diameter and charge of the first droplet emitted in electrospray. *Physics of Fluids*, **2021**, 33, 032002	4.4	5
32	A new fire shaping approach to produce highly axisymmetric and reproducible nozzles. *Journal of Materials Processing Technology*, **2019**, 270, 241-253	5.3	5

31	Whipping in gaseous flow focusing. *International Journal of Multiphase Flow*, **2020**, 130, 103367	3.6	4
30	Nanometre-sized droplets from a gas dynamic virtual nozzle. *Journal of Applied Crystallography*, **2019**, 52, 800-808	3.8	4
29	Electrospray cone-jet mode for weakly viscoelastic liquids. *Physical Review E*, **2019**, 100, 043114	2.4	4
28	Highly Integrable Flow Regulator With Positive Gain. *Journal of Microelectromechanical Systems*, **2011**, 20, 12-14	2.5	4
27	A note on the small oscillation regimes of rotating liquid bridges: Transition from surface to internal wave modes. *Physics of Fluids*, **2005**, 17, 012101-012101-6	4.4	4
26	Universal structures of normal and pathological heart rate variability. *Scientific Reports*, **2016**, 6, 21749	4.9	4
25	Controlled cavity collapse: scaling laws of drop formation. *Soft Matter*, **2018**, 14, 7671-7679	3.6	4
24	Production of regenerated silkworm silk fibers from aqueous dopes through straining flow spinning. *Textile Reseach Journal*, **2019**, 89, 4554-4567	1.7	3
23	Dynamics of formation of poly(vinyl alcohol) filaments with an energetically efficient micro-mixing mechanism. *Physics of Fluids*, **2020**, 32, 122101	4.4	3
22	Scaling Laws of an Exploding Liquid Column under an Intense Ultrashort X-Ray Pulse. *Physical Review Letters*, **2019**, 123, 064501	7.4	3
21	Publisher's Note: Revision of capillary cone-jet physics: Electrospray and flow focusing [Phys. Rev. E 79, 066305 (2009)]. *Physical Review E*, **2009**, 79,	2.4	3
20	A hybrid flow focusing nozzle design to produce micron and sub-micron capillary jets. *International Journal of Mass Spectrometry*, **2016**, 403, 32-38	1.9	2
19	Novel swirl flow-focusing microfluidic device for the production of monodisperse microbubbles. *Microfluidics and Nanofluidics*, **2018**, 22, 1	2.8	2
18	On the validity and applicability of the one-dimensional approximation in cone-jet electrospray. *Journal of Aerosol Science*, **2013**, 61, 60-69	4.3	2
17	On the use of hypodermic needles in electrospray. *EPJ Web of Conferences*, **2013**, 45, 01128	0.3	2
16	An operational calculus framework to characterize droplet size populations from turbulent breakup by a small number of parameters. *Journal of Physics A: Mathematical and Theoretical*, **2010**, 43, 185501	2	2
15	A perfectly steady fluid micro-thread finds its way through a microscopic hole without touching its walls. The tale of a new nebulizer/emulsifier. *Journal of Aerosol Science*, **1998**, 29, S1071-S1072	4.3	2
14	Integrable silicon microfluidic valve with pneumatic actuation **2005**, 118, 144-144		2

13	Regenerated Silk Fibers Obtained by Straining Flow Spinning for Guiding Axonal Elongation in Primary Cortical Neurons. *ACS Biomaterials Science and Engineering*, **2020**, 6, 6842-6852	5.5	2
12	On the Ejection of Filaments of Polymer Solutions Triggered by a Micrometer-Scale Mixing Mechanism. *Materials*, **2021**, 14,	3.5	2
11	Effect of an axial electric field on the breakup of a leaky-dielectric liquid filament. *Physics of Fluids*, **2021**, 33, 092114	4.4	2
10	Effectiveness of flossing loops in the control of the gingival health. *Journal of Clinical and Experimental Dentistry*, **2017**, 9, e756-e761	1.4	1
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7	Microfluidic codecs. *Small*, **2007**, 3, 1140-2	11	1
6	The equilibrium shapes of liquid menisci emitting liquid and charges in steady cone-jet mode. *Journal of Aerosol Science*, **1996**, 27, S187-S188	4.3	1
5	The Dynamics of Bubbles in Periodic Vortex Flowss. *Fluid Mechanics and Its Applications*, **1993**, 285-290	0.2	1
4	Self-similar electrohydrodynamic solutions in multiple coaxial Taylor cones. *Journal of Fluid Mechanics*, **2021**, 915,	3.7	1
3	Ga□-Calvo replies. *Physical Review Letters*, **2018**, 121, 269402	7.4	0
2	The Natural Breakup Length of a Steady Capillary Jet: Application to Serial Femtosecond Crystallography. *Crystals*, **2021**, 11, 990	2.3	0
1	Transonic flow focusing: stability analysis and jet diameter. *International Journal of Multiphase Flow* , **2021**, 142, 103720	3.6	0