

# Raül Sánchez

## List of Publications by Year in descending order

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126  
papers

3,035  
citations

136950

32  
h-index

189892

50  
g-index

129  
all docs

129  
docs citations

129  
times ranked

2028  
citing authors

#	ARTICLE	IF	CITATIONS
1	25 Years of Self-Organized Criticality: Solar and Astrophysics. <i>Space Science Reviews</i> , 2016, 198, 47-166.	8.1	165
2	Physics of the compact advanced stellarator NCSX. <i>Plasma Physics and Controlled Fusion</i> , 2001, 43, A237-A249.	2.1	161
3	Waiting-Time Statistics of Self-Organized-Criticality Systems. <i>Physical Review Letters</i> , 2002, 88, 068302.	7.8	101
4	Momentumâ€‘space structure of relativistic runaway electrons. <i>Physics of Plasmas</i> , 1998, 5, 2370-2377.	1.9	95
5	Dynamics of high energy runaway electrons in the Frascati Tokamak Upgrade. <i>Physics of Plasmas</i> , 2003, 10, 2350-2360.	1.9	90
6	Physics issues of compact drift optimized stellarators. <i>Nuclear Fusion</i> , 2001, 41, 711-716.	3.5	86
7	On the applicability of Fick's law to diffusion in inhomogeneous systems. <i>European Journal of Physics</i> , 2005, 26, 913-925.	0.6	84
8	Probabilistic finite-size transport models for fusion: Anomalous transport and scaling laws. <i>Physics of Plasmas</i> , 2004, 11, 2272-2285.	1.9	72
9	SIESTA: A scalable iterative equilibrium solver for toroidal applications. <i>Physics of Plasmas</i> , 2011, 18, .	1.9	69
10	Quiet-Time Statistics of Electrostatic Turbulent Fluxes from the JET Tokamak and the W7-AS and TJ-II Stellarators. <i>Physical Review Letters</i> , 2003, 90, 185005.	7.8	62
11	Shear AlfvÃ©n continua in stellarators. <i>Physics of Plasmas</i> , 2003, 10, 3217-3224.	1.9	59
12	Additional evidence for the universality of the probability distribution of turbulent fluctuations and fluxes in the scrape-off layer region of fusion plasmas. <i>Physics of Plasmas</i> , 2005, 12, 052507.	1.9	58
13	Runaway electron measurements in the JET tokamak. <i>Plasma Physics and Controlled Fusion</i> , 1996, 38, 2035-2049.	2.1	56
14	Physics design of a high-beta quasi-axisymmetric stellarator. <i>Plasma Physics and Controlled Fusion</i> , 1999, 41, B273-B283.	2.1	56
15	COBRA: An Optimized Code for Fast Analysis of Ideal Ballooning Stability of Three-Dimensional Magnetic Equilibria. <i>Journal of Computational Physics</i> , 2000, 161, 576-588.	3.8	55
16	Physics issues in the design of high-beta, low-aspect-ratio stellarator experiments. <i>Physics of Plasmas</i> , 2000, 7, 1911-1918.	1.9	55
17	Mixed SOC diffusive dynamics as a paradigm for transport in fusion devices. <i>Nuclear Fusion</i> , 2001, 41, 247-256.	3.5	55
18	Ballistic transport phenomena in TJ-II. <i>Nuclear Fusion</i> , 2002, 42, 787-795.	3.5	49

#	ARTICLE	IF	CITATIONS
19	Nonclassical Transport and Particle-Field Coupling: from Laboratory Plasmas to the Solar Wind. <i>Space Science Reviews</i> , 2013, 178, 233-270.	8.1	48
20	Energy limits on runaway electrons in tokamak plasmas. <i>Physics of Plasmas</i> , 1999, 6, 238-252.	1.9	46
21	Recent advances in the design of quasisymmetric stellarator plasma configurations. <i>Physics of Plasmas</i> , 2001, 8, 2083-2094.	1.9	46
22	Nature of Transport across Sheared Zonal Flows in Electrostatic Ion-Temperature-Gradient Gyrokinetic Plasma Turbulence. <i>Physical Review Letters</i> , 2008, 101, 205002.	7.8	45
23	Fluid limit of nonintegrable continuous-time random walks in terms of fractional differential equations. <i>Physical Review E</i> , 2005, 71, 011111.	2.1	44
24	Self-organized criticality and the dynamics of near-marginal turbulent transport in magnetically confined fusion plasmas. <i>Plasma Physics and Controlled Fusion</i> , 2015, 57, 123002.	2.1	44
25	Renormalization of tracer turbulence leading to fractional differential equations. <i>Physical Review E</i> , 2006, 74, 016305.	2.1	43
26	Parallelization in time of numerical simulations of fully-developed plasma turbulence using the parareal algorithm. <i>Journal of Computational Physics</i> , 2010, 229, 6558-6573.	3.8	43
27	Effect of magnetic and electrostatic fluctuations on the runaway electron dynamics in tokamak plasmas. <i>Physics of Plasmas</i> , 1999, 6, 3925-3933.	1.9	38
28	Enhanced Production of Runaway Electrons during a Disruptive Termination of Discharges Heated with Lower Hybrid Power in the Frascati Tokamak Upgrade. <i>Physical Review Letters</i> , 2006, 97, 165002.	7.8	38
29	BCYCLIC: A parallel block tridiagonal matrix cyclic solver. <i>Journal of Computational Physics</i> , 2010, 229, 6392-6404.	3.8	37
30	A 3D approach to equilibrium, stability and transport studies in RFX-mod improved regimes. <i>Plasma Physics and Controlled Fusion</i> , 2010, 52, 124023.	2.1	35
31	Experimental Observation of Increased Threshold Electric Field for Runaway Generation due to Synchrotron Radiation Losses in the FTU Tokamak. <i>Physical Review Letters</i> , 2010, 105, 185002.	7.8	33
32	Physics of compact stellarators. <i>Physics of Plasmas</i> , 1999, 6, 1858-1864.	1.9	32
33	Mechanisms for the convergence of time-parallelized, parareal turbulent plasma simulations. <i>Journal of Computational Physics</i> , 2012, 231, 7851-7867.	3.8	32
34	Event-based parareal: A data-flow based implementation of parareal. <i>Journal of Computational Physics</i> , 2012, 231, 5945-5954.	3.8	31
35	Transport equation describing fractional Lévy motion of suprathermal ions in TORPEX. <i>Nuclear Fusion</i> , 2014, 54, 104009.	3.5	31
36	Uphill transport and the probabilistic transport model. <i>Physics of Plasmas</i> , 2004, 11, 3787-3794.	1.9	30

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37	25 Years of Self-organized Criticality: Space and Laboratory Plasmas. <i>Space Science Reviews</i> , 2016, 198, 167-216.	8.1	30
38	Runaway electron behaviour during electron cyclotron resonance heating in the Frascati Tokamak Upgrade. <i>Nuclear Fusion</i> , 2004, 44, 974-981.	3.5	29
39	The path integral formulation of fractional Brownian motion for the general Hurst exponent. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008, 41, 282002.	2.1	29
40	Overview of the RFX fusion science program. <i>Nuclear Fusion</i> , 2011, 51, 094023.	3.5	29
41	Probabilistic transport models for plasma transport in the presence of critical thresholds: Beyond the diffusive paradigm. <i>Physics of Plasmas</i> , 2005, 12, 056105.	1.9	28
42	Predictions on runaway current and energy during disruptions in tokamak plasmas. <i>Physics of Plasmas</i> , 2000, 7, 3369-3377.	1.9	27
43	Overview of the RFX-mod fusion science activity. <i>Nuclear Fusion</i> , 2017, 57, 102012.	3.5	27
44	Kinetic equation of linear fractional stable motion and applications to modeling the scaling of intermittent bursts. <i>Physical Review E</i> , 2009, 79, 041124.	2.1	26
45	Ballooning stability optimization of low-aspect-ratio stellarators*. <i>Plasma Physics and Controlled Fusion</i> , 2000, 42, 641-653.	2.1	25
46	Interaction of runaway electrons with lower hybrid waves via anomalous Doppler broadening. <i>Physics of Plasmas</i> , 2002, 9, 1667-1675.	1.9	25
47	The foundations of diffusion revisited. <i>Plasma Physics and Controlled Fusion</i> , 2005, 47, B743-B754.	2.1	25
48	Characterization of Nondiffusive Transport in Plasma Turbulence via a Novel Lagrangian Method. <i>Physical Review Letters</i> , 2008, 101, 165001.	7.8	24
49	Fractional Generalization of Fick's Law: A Microscopic Approach. <i>Physical Review Letters</i> , 2007, 99, 230603.	7.8	23
50	Transition in the Dynamics of a Diffusive Running Sandpile. <i>Physical Review Letters</i> , 2002, 88, 204304.	7.8	20
51	Fractional Lévy motion through path integrals. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2009, 42, 055003.	2.1	20
52	Persistent dynamic correlations in self-organized critical systems away from their critical point. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2007, 373, 215-230.	2.6	19
53	Three-dimensional equilibria and transport in RFX-mod: A description using stellarator tools. <i>Physics of Plasmas</i> , 2011, 18, .	1.9	19
54	An analytic model for the convergence of turbulent simulations time-parallelized via the parareal algorithm. <i>Journal of Computational Physics</i> , 2013, 255, 293-315.	3.8	18

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55	Overview of the RFX-mod contribution to the international Fusion Science Program. Nuclear Fusion, 2015, 55, 104012.	3.5	18
56	Comparison of runaway dynamics in LH and ECRH heated discharges in the Frascati Tokamak Upgrade. Nuclear Fusion, 2005, 45, 1524-1533.	3.5	17
57	On the nature of radial transport across sheared zonal flows in electrostatic ion-temperature-gradient gyrokinetic tokamak plasma turbulence. Physics of Plasmas, 2009, 16, 055905.	1.9	17
58	Overview of the RFX-mod fusion science programme. Nuclear Fusion, 2013, 53, 104018.	3.5	17
59	Quiet-time statistics: A tool to probe the dynamics of self-organized-criticality systems from within the strong overlapping regime. Physical Review E, 2002, 66, 036124.	2.1	16
60	Comment on "Do Earthquakes Exhibit Self-Organized Criticality?" Physical Review Letters, 2004, 93, 249801; author reply 249802.	7.8	16
61	On the nature of transport in near-critical dissipative-trapped-electron-mode turbulence: Effect of a subdominant diffusive channel. Physics of Plasmas, 2008, 15, 112301.	1.9	16
62	Nature of turbulent transport across sheared zonal flows: insights from gyrokinetic simulations. Plasma Physics and Controlled Fusion, 2011, 53, 074018.	2.1	16
63	Compressibility effects on ideal and resistive ballooning stability in the TJ-II heliac device. Nuclear Fusion, 1997, 37, 1363-1373.	3.5	14
64	Modelling of ELM-like phenomena via mixed SOC-diffusive dynamics. Nuclear Fusion, 2003, 43, 1031-1039.	3.5	14
65	Magnetohydrodynamics stability of compact stellarators. Physics of Plasmas, 2000, 7, 1809-1815.	1.9	13
66	High- $\beta$ Equilibria of Drift-Optimized Compact Stellarators. Physical Review Letters, 2002, 89, 125003.	7.8	13
67	Extension of the SIESTA MHD equilibrium code to free-plasma-boundary problems. Physics of Plasmas, 2017, 24, .	1.9	13
68	Study of the interaction between diffusive and avalanche-like transport in near-critical dissipative-trapped-electron-mode turbulence. Physics of Plasmas, 2006, 13, 102308.	1.9	12
69	Continuous time random walks in finite domains and general boundary conditions: some formal considerations. Journal of Physics A: Mathematical and Theoretical, 2008, 41, 215004.	2.1	12
70	First use of three-dimensional equilibrium, stability and transport calculations for interpretation of ELM triggering with magnetic perturbations in NSTX. Nuclear Fusion, 2012, 52, 054004.	3.5	12
71	Ideal Magnetohydrodynamic Stability of the NCSX. Fusion Science and Technology, 2007, 51, 218-231.	1.1	11
72	A dependency-driven formulation of parareal. , 2011, , .		11

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73	Design studies of low aspect ratio quasi-omnigenous stellarators. Nuclear Fusion, 2000, 40, 563-567.	3.5	10
74	On the effect of synchrotron radiation and magnetic fluctuations on the avalanche runaway growth rate. Physics of Plasmas, 2000, 7, 3814-3817.	1.9	10
75	Improved magnetic coordinate representation for ideal ballooning stability calculations with the COBRA code. Computer Physics Communications, 2001, 135, 82-92.	7.5	10
76	Properties of the LHD plasmas with a large islandâ€™super dense core plasma and island healing. Plasma Physics and Controlled Fusion, 2006, 48, B383-B390.	2.1	10
77	Internal disruptions and sawtooth like activity in Large Helical Device. Physics of Plasmas, 2012, 19, 082501.	1.9	10
78	On the use of critical gradient models in fusion plasma transport studies. Physics of Plasmas, 2006, 13, 062301.	1.9	9
79	Determination of the parametric region in which runaway electron energy losses are dominated by bremsstrahlung radiation in tokamaks. Physics of Plasmas, 2007, 14, 072503.	1.9	9
80	Pitch angle scattering and synchrotron radiation of relativistic runaway electrons in tokamak stochastic magnetic fields. Physics of Plasmas, 2008, 15, .	1.9	8
81	Perpendicular dynamics of runaway electrons in tokamak plasmas. Physics of Plasmas, 2012, 19, 102504.	1.9	8
82	ALARIC: An algorithm for constructing arbitrarily complex initial density distributions with low particle noise for SPH/SPMHD applications. Computer Physics Communications, 2018, 224, 186-197.	7.5	8
83	Ideal MHD stability calculations for compact stellarators. Computer Physics Communications, 2001, 141, 55-65.	7.5	7
84	Avalanche structure in a running sandpile model. Physical Review E, 2002, 66, 011302.	2.1	7
85	Continuous time random walks in periodic systems: fluid limit and fractional differential equations on the circle. Journal of Physics A: Mathematical and Theoretical, 2007, 40, 13511-13522.	2.1	7
86	Relevance of Uncorrelated Lorentzian Pulses for the Interpretation of Turbulence in the Edge of Magnetically Confined Toroidal Plasmas. Physical Review Letters, 2012, 109, 105001.	7.8	7
87	Pseudochaotic poloidal transport in the laminar regime of the resistive ballooning instabilities. Physics of Plasmas, 2008, 15, 042302.	1.9	6
88	PB3D: A new code for edge 3-D ideal linear peeling-ballooning stability. Journal of Computational Physics, 2017, 330, 997-1009.	3.8	6
89	A positioning algorithm for SPH ghost particles in smoothly curved geometries. Journal of Computational and Applied Mathematics, 2019, 353, 140-153.	2.0	6
90	Estimation of synchrotron radiation and limiting energy of high-energy runaway electrons in tokamak stochastic magnetic fields. Physics of Plasmas, 2006, 13, 012508.	1.9	5

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91	Pulse propagation in a simple probabilistic transport model. Nuclear Fusion, 2007, 47, 189-195.	3.5	5
92	Recurrence quantification analysis of simulations of near-marginal dissipative-trapped-electron-mode turbulence. Physics of Plasmas, 2011, 18, 062306.	1.9	5
93	Characterization of a transition in the transport dynamics of a diffusive sandpile by means of recurrence quantification analysis. Physical Review E, 2016, 94, 022128.	2.1	5
94	Three-dimensional linear peeling-ballooning theory in magnetic fusion devices. Physics of Plasmas, 2014, 21, 042507.	1.9	4
95	Bootstrap current control studies in the Wendelstein 7-X stellarator using the free-plasma-boundary version of the SIESTA MHD equilibrium code. Plasma Physics and Controlled Fusion, 2018, 60, 025023.	2.1	4
96	Kinetic effects on ideal ballooning stability of the TJ-II heliac device. Nuclear Fusion, 1998, 38, 1511-1521.	3.5	3
97	Determination of long-range correlations by quiet-time statistics. Physics of Plasmas, 2005, 12, 052304.	1.9	3
98	Fourier signature of filamentary vorticity structures in two-dimensional turbulence. Europhysics Letters, 2016, 115, 34002.	2.0	3
99	A Primer on Complex Systems. Lecture Notes in Physics, 2018, , .	0.7	3
100	Magneto-hydrodynamical nonlinear simulations of magnetically confined plasmas using smooth particle hydrodynamics (SPH). Physics of Plasmas, 2019, 26, 012511.	1.9	3
101	Tracer particle transport dynamics in the diffusive sandpile cellular automaton. Chaos, Solitons and Fractals, 2020, 140, 110117.	5.1	3
102	ORCO: A numerical tool to study the radial diffusion of runaway electrons in tokamaks. Computer Physics Communications, 2003, 156, 95-107.	7.5	2
103	Second ballooning stability in high- $\hat{\nu}^2$ , compact stellarators. Physics of Plasmas, 2004, 11, 2453-2458.	1.9	2
104	Modelling parareal convergence in 2D drift wave plasma turbulence. , 2012, , .		2
105	Characterization of radial turbulent fluxes in the Santander linear plasma machine. Physics of Plasmas, 2014, 21, 052303.	1.9	2
106	Quasi-symmetry and the nature of radial turbulent transport in quasi-poloidal stellarators. Physics of Plasmas, 2016, 23, 102308.	1.9	2
107	Implementation of 2D Domain Decomposition in the UCAN Gyrokinetic Particle-in-Cell Code and Resulting Performance of UCAN2. Communications in Computational Physics, 2016, 19, 205-225.	1.7	2
108	Investigation of the interaction between competing types of nondiffusive transport in drift wave turbulence. Physics of Plasmas, 2017, 24, 052307.	1.9	2

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109	Effect of non-axisymmetric perturbations on the ambipolar $E_r$ and neoclassical particle flux inside the ITER pedestal region. Nuclear Fusion, 2020, 60, 086017.	3.5	2
110	ON THE IDENTIFICATION OF SOC DYNAMICS IN THE SUN-EARTH SYSTEM. , 2005, , 55-68.		2
111	Scale-free transport in fusion plasmas: theory and applications. , 2008, , .		1
112	Transport dynamics of self-consistent, near-marginal drift-wave turbulence. I. Investigation of the ability of external flows to tune the non-diffusive dynamics. Physics of Plasmas, 2017, 24, 072309.	1.9	1
113	Laboratory Fusion Plasmas: Dynamics of Near-Marginal Turbulent Radial Transport. Lecture Notes in Physics, 2018, , 279-311.	0.7	1
114	Modeling transport across the running-sandpile cellular automaton by means of fractional transport equations. Physical Review E, 2018, 97, 052123.	2.1	1
115	A novel efficient solver for Ampere's equation in general toroidal topologies based on singular value decomposition techniques. Journal of Computational Physics, 2020, 406, 109214.	3.8	1
116	Non-diffusive nature of collisionless $\langle b \rangle \langle i \rangle \pm \langle i \rangle \langle b \rangle$ -particle transport: Dependence on toroidal symmetry in stellarator geometries. Physics of Plasmas, 2020, 27, .	1.9	1
117	Nonclassical Transport and Particle-Field Coupling: from Laboratory Plasmas to the Solar Wind. Space Sciences Series of ISSI, 2013, , 157-194.	0.0	1
118	Reply to comment on "Comparison of runaway dynamics in LH and ECRH heated discharges in the Frascati Tokamak Upgrade"™. Nuclear Fusion, 2008, 48, 068002.	3.5	0
119	Transport dynamics of self-consistent, near-marginal drift-wave turbulence. II. Characterization of transport by means of passive scalars. Physics of Plasmas, 2017, 24, 072310.	1.9	0
120	Primer on Complex Systems. Lecture Notes in Physics, 2018, , 3-39.	0.7	0
121	Scale Invariance. Lecture Notes in Physics, 2018, , 103-175.	0.7	0
122	Fundamentals of Fractional Transport. Lecture Notes in Physics, 2018, , 221-276.	0.7	0
123	Space Plasmas: Complex Dynamics of the Active Sun. Lecture Notes in Physics, 2018, , 313-337.	0.7	0
124	Planetary Plasmas: Complex Dynamics in the Magnetosphere of the Earth. Lecture Notes in Physics, 2018, , 339-380.	0.7	0
125	Laboratory Plasmas: Dynamics of Transport Across Sheared Flows. Lecture Notes in Physics, 2018, , 381-400.	0.7	0
126	Quantifying Profile Stiffness. Plasma and Fusion Research, 2008, 3, S1070-S1070.	0.7	0