Florentino Borondo Rodriguez

List of Publications by Year
in descending order

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161	2,503	218677	289244
papers	citations	26 h-index	40 g-index

161	161	161	833
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The semiclassical quantization of nonseparable systems using the method of adiabatic switching. Journal of Chemical Physics, 1985, 82, 4611-4632.	3.0	158
2	Causal trajectories description of atom diffraction by surfaces. Physical Review B, 2000, 61, 7743-7751.	3.2	93
3	Scars in Groups of Eigenstates in a Classically Chaotic System. Physical Review Letters, 1994, 73, 1613-1616.	7.8	85
4	Particle diffraction studied using quantum trajectories. Journal of Physics Condensed Matter, 2002, 14, 6109-6145.	1.8	72
5	Comparison of classical and quantum phase space structure of nonrigid molecules, LiCN. Chemical Physics Letters, 1989, 161, 60-66.	2.6	54
6	Quantum trajectories in atomâ€“surface scattering with single adsorbates: The role of quantum vortices. Journal of Chemical Physics, 2004, 120, 8794-8806.	3.0	52
7	Electronic structure of a GaAs quantum well in an electric field. Physical Review B, 1986, 33, 8758-8761.	3.2	49
8	Role of quantum vortices in atomic scattering from single adsorbates. Physical Review B, 2004, 69, .	3.2	49
9	Scar Formation at the Edge of the Chaotic Region. Physical Review Letters, 1998, 80, 944-947.	7.8	47
10	Charge transfer in H+ + Hâ˜ collisions. Chemical Physics, 1983, 81, 303-314.	1.9	41
11	Signatures of Homoclinic Motion in Quantum Chaos. Physical Review Letters, 2005, 94, 054101.	7.8	41
12	Solvent-Induced Acceleration of the Rate of Activation of a Molecular Reaction. Physical Review Letters, 2008, 101, 178302.	7.8	40
13	Transition state geometry of driven chemical reactions on time-dependent double-well potentials. Physical Chemistry Chemical Physics, 2016, 18, 30270-30281.	2.8	37
14	A periodic orbit analysis of the vibrationally highly excited LiNC/LiCN: A comparison with quantum mechanics. Journal of Chemical Physics, 1996, 104, 2921-2931.	3.0	36
15	Asymmetry Effect in the Neutralization ReactionH++Hâ˜. Physical Review Letters, 1981, 46, 420-423.	7.8	35
16	On the classical limit in atom-surface diffraction. Europhysics Letters, 2001, 55, 303-309.	2.0	35
17	Saddleâ€node bifurcations in the LiNC/LiCN molecular system: Classical aspects and quantum manifestations. Journal of Chemical Physics, 1996, 105, 5068-5081.	3.0	34
18	Local frequency analysis and the structure of classical phase space of the LiNC/LiCN molecular system. Journal of Chemical Physics, 1998, 108, 63-71.	3.0	34

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19	Quantum manifestations of saddle-node bifurcations. Chemical Physics Letters, 1995, 246, 421-426.	2.6	33
20	A quantum trajectory description of decoherence. European Physical Journal D, 2007, 44, 319-326.	1.3	32
21	Nonadiabatic ionicâ€“covalent transitions. Exponentialâ€“linear model for the process H++Hâ^'â†'H(2s,2p)+H(1s). Journal of Chemical Physics, 1981, 74, 6126-6132.	3.0	31
22	Scarring by Homoclinic and Heteroclinic Orbits. Physical Review Letters, 2006, 97, 094101.	7.8	31
23	Loss of coherence in double-slit diffraction experiments. Physical Review A, 2005, 71, .	2.5	30
24	Fractal Weyl law behavior in an open Hamiltonian system. Physical Review E, 2009, 80, 055201.	2.1	30
25	Adiabatic energies and radial couplings of the 3Î£+u states of H2. Journal of Chemical Physics, 1987, 86, 4982-4989.	3.0	27
26	Vortex dynamics and their interactions in quantum trajectories. Journal of Physics A: Mathematical and Theoretical, 2007, 40, 14353-14368.	2.1	26
27	Soil porous system as heterogeneous complex network. Geoderma, 2010, 160, 13-21.	5.1	26
28	Self-consistent calculation of the electronic properties of a selectively dopedAlxGa1â^'xAsâ^'GaAsquantum well under high magnetic fields. Physical Review B, 1987, 36, 5070-5073.	3.2	25
29	Saddle point resonances in a bound system with classical chaos. Chemical Physics Letters, 1992, 192, 430-436.	2.6	25
30	Multifractal analysis of tori destruction in a molecular Hamiltonian system. Physical Review E, 2001, 65, 016213.	2.1	25
31	Unveiling the chaotic structure in phase space of molecular systems using Lagrangian descriptors. Physical Review E, 2019, 99, 032221.	2.1	25
32	Semiclassical quantization of fragmented tori: Application to saddle-node states of LiNC/LiCN. Journal of Chemical Physics, 1997, 107, 7934-7942.	3.0	24
33	Clustering in vibrated monolayers of granular rods. Soft Matter, 2017, 13, 2571-2582.	2.7	24
34	On the use of adiabatic switching to locate quantized, periodic orbits: Application to bound and reactive multidimensional problems. Journal of Chemical Physics, 1986, 84, 1533-1546.	3.0	23
35	Avoided crossings, scars, and transition to chaos. Journal of Chemical Physics, 1997, 107, 2395-2406.	3.0	23
36	Localization properties of groups of eigenstates in chaotic systems. Physical Review E, 2001, 63, 066220.	2.1	22

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37	Contextuality, decoherence and quantum trajectories. Chemical Physics Letters, 2009, 478, 301-306.	2.6	22
38	Classical chaotic elastic atom-surface scattering. Surface Science, 1994, 317, 211-220.	1.9	21
39	Control of chemical reactions using external electric fields: The case of the LiNCâ‡ŒLiCN isomerization. Chemical Physics Letters, 2010, 496, 356-361.	2.6	21
40	Predissociation of the D1Îustate of H2near threshold. Journal of Physics B: Atomic and Molecular Physics, 1982, 15, 899-908.	1.6	20
41	Scars at the edge of the transition from order to chaos in the isomerizing molecular systems LiNC-LiCN and HCN-HNC, and<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>HO</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review E, 2010, 82, 026201.	2.1	19
42	To Each According to its Degree: The Meritocracy and Topocracy of Embedded Markets. Scientific Reports, 2014, 4, 3784.	3.3	19
43	Transition state theory for activated systems with driven anharmonic barriers. Journal of Chemical Physics, 2017, 147, 074104.	3.0	19
44	A numerical method for the transformation to good action-angle variables in non-separable multidimensional systems. Chemical Physics Letters, 1985, 118, 409-413.	2.6	18
45	Distribution of zeros of the Husimi function in a realistic Hamiltonian molecular system. Physical Review E, 1996, 54, 2458-2464.	2.1	18
46	Vortex interaction, chaos and quantum probabilities. Europhysics Letters, 2006, 73, 671-676.	2.0	18
47	PoincarÃ©-Birkhoff theorem in quantum mechanics. Physical Review E, 2011, 84, 026206.	2.1	18
48	Detailed study of the direct numerical observation of the Kramers turnover in the LiNCâ‡ŒLiCN isomerization rate. Journal of Chemical Physics, 2012, 137, 204301.	3.0	18
49	Reaction rate calculation with time-dependent invariant manifolds. Journal of Chemical Physics, 2012, 136, 224510.	3.0	18
50	Multiscaling of porous soils as heterogeneous complex networks. Nonlinear Processes in Geophysics, 2008, 15, 893-902.	1.3	17
51	Diffraction of atoms from stepped surfaces: A semiclassical chaoticS-matrix study. Physical Review B, 1996, 53, 14117-14126.	3.2	16
52	Threshold resonances in classical chaotic atomâ€”surface scattering. Surface Science, 1997, 375, L379-L384.	1.9	16
53	Solvated molecular dynamics of LiCN isomerization: All-atom argon solvent versus a generalized Langevin bath. Journal of Chemical Physics, 2016, 144, 024104.	3.0	15
54	Periodic-orbit spectroscopy of the hydrogen atom in parallel electric and magnetic fields. Physical Review A, 1994, 49, 2734-2747.	2.5	14

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55	Topology of the distribution of zeros of the Husimi function in the LiNC/LiCN molecular system. Journal of Chemical Physics, 2004, 120, 6516-6523.	3.0	14
56	A dynamical systems approach to Bohmian trajectories in a 2D harmonic oscillator. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 495103.	2.1	14
57	Diagonal matrix elements in a scar function basis set. Europhysics Letters, 2010, 89, 40013.	2.0	14
58	Communication: Transition state theory for dissipative systems without a dividing surface. Journal of Chemical Physics, 2012, 136, 091102.	3.0	14
59	Phase space structure of the hydrogen atom in a circularly polarized microwave field. Physica D: Nonlinear Phenomena, 2012, 241, 333-349.	2.8	14
60	Onset of quantum chaos in molecular systems and the zeros of the Husimi function. Physical Review E, 2013, 87, 062901.	2.1	14
61	The role of the CN vibration in the activated dynamics of LiNC$ightleftharpoons$â‡ŒLiCN isomerization in an argon solvent at high temperatures. Journal of Chemical Physics, 2014, 141, 074312.	3.0	14
62	Molecular treatment of the ion-pair formation reaction in H(1s)+H(1s) collisions. Physical Review A, 1987, 35, 60-65.	2.5	13
63	Quantum localization through interference on homoclinic and heteroclinic circuits. New Journal of Physics, 2008, 10, 053016.	2.9	13
64	Influence of external driving on decays in the geometry of the LiCN isomerization. Journal of Chemical Physics, 2020, 153, 084115.	3.0	13
65	Beyond the first recurrence in scar phenomena. Physical Review E, 2000, 62, R7583-R7586.	2.1	12
66	Dynamics of quantum trajectories in chaotic systems. Europhysics Letters, 2003, 64, 441-447.	2.0	12
67	Homoclinic motions in the vibrational spectra of floppy systems: The LiCN molecule. Journal of Chemical Physics, 2005, 122, 111101.	3.0	12
68	Vibrational dynamics of the floppy LiNCâˆ•LiCN molecular system. Journal of Chemical Physics, 2005, 123, 044301.	3.0	12
69	Newtonian and special-relativistic predictions for the trajectories of a low-speed scattering system. Physical Review E, 2011, 83, 036201.	2.1	12
70	Scar Functions, Barriers for Chemical Reactivity, and Vibrational Basis Sets. Journal of Physical Chemistry A, 2016, 120, 4928-4938.	2.5	12
71	Theory of short periodic orbits for partially open quantum maps. Physical Review E, 2016, 94, 012222.	2.1	12
72	Asymmetry effect in H+ + Hâ” neutralization. Application to the n = 3 pseudocrossing. Chemical Physics Letters, 1983, 100, 63-66.	2.6	11

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73	The adiabatic switching of semiclassical wave functions. Journal of Chemical Physics, 1986, 85, 2760-2773.	3.0	11
74	Molecular mechanism for hydrogen-hydrogen excitation collisions. Physical Review A, 1987, 36, 3630-3638.	2.5	11
75	Transition from order to chaos in molecular wave functions and spectra. Journal of Chemical Physics, 1996, 104, 6401-6404.	3.0	11
76	Classical singularities in chaotic atom-surface scattering. Physical Review B, 1996, 54, 10397-10400.	3.2	11
77	Classical invariants and the quantization of chaotic systems. Physical Review E, 2004, 70, 035202.	2.1	11
78	Computationally efficient method to construct scar functions. Physical Review E, 2012, 85, 026214.	2.1	11
79	Using basis sets of scar functions. Physical Review E, 2013, 87, 042921.	2.1	11
80	Maximum population transfer in a periodically driven quantum system. Physical Review A, 2014, 90, .	2.5	11
81	Above Saddle-Point Regions of Order in a Sea of Chaos in the Vibrational Dynamics of KCN. Journal of Physical Chemistry A, 2018, 122, 3433-3441.	2.5	11
82	Periodic orbits and the homoclinic tangle in atom-surface chaotic scattering. Physical Review E, 1997, 56, 378-389.	2.1	10
83	Transition from order to chaos in a floppy molecule: LiNC/LiCN. Chemical Physics Letters, 2000, 317, 451-457.	2.6	10
84	Frequency map analysis of the 3D vibrational dynamics of the LiCN/LiNC molecular system. European Physical Journal: Special Topics, 2008, 165, 183-193.	2.6	10
85	Field emission properties of fractal surfaces. Physical Review B, 2008, 78, .	3.2	10
86	Towards AC-induced optimum control of dynamical localization. Europhysics Letters, 2015, 110, 40007.	2.0	10
87	Lagrangian descriptors and regular motion. Communications in Nonlinear Science and Numerical Simulation, 2021, 102, 105860.	3.3	10
88	The onset of classical chaos in atom-surface scattering. International Journal of Quantum Chemistry, 1994, 52, 515-525.	2.0	9
89	Frequency analysis of the molecular vibrations of HCP. Journal of Chemical Physics, 2008, 129, 164316.	3.0	9
90	Environmental stability of quantum chaotic ratchets. Physical Review E, 2011, 83, 011103.	2.1	9

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91	Transition state theory for solvated reactions beyond recrossing-free dividing surfaces. Physical Review E, 2016, 93, 062304.	2.1	9
92	Lagrangian descriptors for open maps. Physical Review E, 2020, 101, 022208.	2.1	9
93	Theoretical study of the rotational predissociation of the c 3Ï€u state of H2. Chemical Physics Letters, 1988, 147, 246-252.	2.6	8
94	Quantum phase-space densities for a quartic oscillator. International Journal of Quantum Chemistry, 1994, 51, 555-567.	2.0	8
95	Algebraic calculation of vibrational energy levels for polyatomic molecules XH3 and XH4: application to ammonia and silane. Chemical Physics Letters, 2001, 344, 421-428.	2.6	8
96	Ab initio potential energy surface for the highly nonlinear dynamics of the KCN molecule. Journal of Chemical Physics, 2013, 139, 194304.	3.0	8
97	Semiclassical basis sets for the computation of molecular vibrational states. Journal of Chemical Physics, 2017, 146, 014107.	3.0	8
98	Atom scattering off a vibrating surface: An example of chaotic scattering with three degrees of freedom. Communications in Nonlinear Science and Numerical Simulation, 2020, 90, 105282.	3.3	8
99	Semiclassical rainbow analysis in atom-surface scattering. Surface Science, 1995, 338, L863-L868.	1.9	7
100	Superscars in the LiNC â‡‹ LiCN isomerization reaction. Europhysics Letters, 2009, 88, 40003.	2.0	7
101	Classical transients and the support of open quantum maps. Physical Review E, 2013, 87, 012909.	2.1	7
102	Frequency analysis of the laser driven nonlinear dynamics of HCN. Journal of Chemical Physics, 2016, 145, 244309.	3.0	7
103	Shannon entropy at avoided crossings in the quantum transition from order to chaos. Physical Review E, 2019, 99, 062209.	2.1	7
104	Theoretical Methods for the Analysis of Spectra of Highly Vibrationally Excited Polyatomic Molecules. Laser Chemistry, 1992, 12, 85-102.	0.5	6
105	Dynamical couplings of the predissociative n = 3 triplet gerade complex of H2. Chemical Physics Letters, 1992, 200, 587-591.	2.6	6
106	Quantum manifestations of chaos in elastic atom-surface scattering. Physical Review B, 2001, 63, .	3.2	6
107	The onset of chaos in the vibrational dynamics of LiNCâˆ•LiCN. Journal of Chemical Physics, 2005, 123, 134305.	3.0	6
108	Field emission properties of an array of pyramidal structures. Journal Physics D: Applied Physics, 2009, 42, 195303.	2.8	6

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109	Zeros of the Husimi function and quantum numbers in the HCP molecule. European Physical Journal D, 2010, 60, 279-286.	1.3	6
110	Effect of the local morphology in the field emission properties of conducting polymer surfaces. Journal of Physics Condensed Matter, 2013, 25, 285106.	1.8	6
111	Quantum control of isomerization by robust navigation in the energy spectrum. Journal of Chemical Physics, 2015, 143, 214305.	3.0	6
112	Role of short periodic orbits in quantum maps with continuous openings. Physical Review E, 2018, 97, 042211.	2.1	6
113	Short-periodic-orbit method for excited chaotic eigenfunctions. Physical Review E, 2020, 102, 042210.	2.1	6
114	Identifying reaction pathways in phase space via asymptotic trajectories. Physical Chemistry Chemical Physics, 2020, 22, 10087-10105.	2.8	6
115	Classical, Semiclassical, and Quantum Dynamics of Long-Lived Highly Excited Vibrational States of Triatoms. ACS Symposium Series, 1984, , 323-336.	0.5	5
116	Molecular spectra, quantum chaos, and scars. European Physical Journal D, 1998, 4, 181-187.	1.3	5
117	Quantum manifestations of classical trajectories in molecular systems. International Journal of Quantum Chemistry, 2002, 86, 175-181.	2.0	5
118	Controlling dynamical localization by waveform reshaping. Europhysics Letters, 2009, 86, 30004.	2.0	5
119	Geometrical analysis of the LiCN vibrational dynamics: A stability geometrical indicator. Physical Review E, 2014, 89, 022901.	2.1	5
120	Using the small alignment index chaos indicator to characterize the vibrational dynamics of a molecular system: LiNC-LiCN. Physical Review E, 2015, 92, 042918.	2.1	5
121	Bohr-Sommerfeld-like quantization in the theory of walking droplets. Physical Review E, 2021, 103, 053110.	2.1	5
122	Identification of the invariant manifolds of the LiCN molecule using Lagrangian descriptors. Physical Review E, 2021, 104, 044210.	2.1	5
123	Electronic structure of modulation n-doped multiple quantum well. Applied Surface Science, 1990, 41-42, 464-469.	6.1	4
124	Predissociative lifetimes of the 2 3Îg state of the H2 molecule. Chemical Physics Letters, 1994, 226, 235-240.	2.6	4
125	Probability density distributions in phase space. Computational and Theoretical Chemistry, 1998, 426, 87-93.	1.5	4
126	Frequency map analysis and scars in molecular vibrations. International Journal of Quantum Chemistry, 2002, 86, 167-174.	2.0	4

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127	Space and momentum representation analysis of Hartmanâ€™s effect in wave packet transmission. Physical Review A, 2008, 78, .	2.5	4
128	Chaos in the classical mechanics of bound and quasi-bound HXâ€“4He complexes with X = F, Cl, Br, CN. Physical Chemistry Chemical Physics, 2009, 11, 8203.	2.8	4
129	Analysis of the Full Vibrational Dynamics of the LiNC/LiCN Molecular System. Springer Proceedings in Mathematics and Statistics, 2013, , 77-88.	0.2	4
130	Dynamical localization in nonideal kicked rotors. Physical Review E, 2018, 98, .	2.1	4
131	Finite-barrier corrections for multidimensional barriers in colored noise. Physical Review E, 2019, 99, 052211.	2.1	4
132	Quantum chaos in floppy molecular systems: The LiCN molecule. , 2006, , 115-128.		4
133	Lagrangian descriptors for the Bunimovich stadium billiard. Physical Review E, 2022, 105, 014208.	2.1	4
134	Deterministic diffusion in almost integrable systems. Chaos, 1996, 6, 519-527.	2.5	3
135	Scars in Molecular Vibrations and Spectra of LiCN. Foundations of Physics, 2001, 31, 147-163.	1.3	3
136	Comment on â€œReduced coherence in double-slit diffraction of neutronsâ€• Physical Review A, 2008, 77, .	2.5	3
137	Community Structure in a Soil Porous System. Soil Science, 2012, 177, 81-87.	0.9	3
138	Deep learning methods for the computation of vibrational wavefunctions. Communications in Nonlinear Science and Numerical Simulation, 2021, 103, 105989.	3.3	3
139	Dynamically localized wave packets as a tool to study the dynamics of the LiNCâ‡ŒLiCN isomerization reaction. Journal of Chemical Physics, 2002, 116, 10183-10196.	3.0	2
140	Control of isomerization in classical ensembles of nonrigid molecular systems, LiCN. , 0, , .		2
141	Using correlation diagrams to study the vibrational spectrum of highly nonlinear floppy molecules: The K-CN case. Physical Review E, 2020, 101, 062215.	2.1	2
142	Correspondence between classical and quantum resonances. Physical Review E, 2021, 103, 062207.	2.1	2
143	Dynamics and Spectroscopy of Highly Excited Molecules. , 1995, , 371-392.		2
144	Newtonian versus Special-Relativistic Statistical Predictions for Low-Speed Scattering. PLoS ONE, 2012, 7, e48447.	2.5	2

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145	Global dynamics of nonrigid triatomic molecular systems of three degrees of freedom. AIP Conference Proceedings, 2007, , .	0.4	1
146	The scar mechanism revisited. European Physical Journal: Special Topics, 2008, 165, 93-101.	2.6	1
147	Effect of irregularities in the work function and field emission properties of metals. Journal of Applied Physics, 2010, 108, 114512.	2.5	1
148	Quantization Scheme for the Experiments with â€œWalking Dropletsâ€• Journal of Physical Chemistry A, 2019, 123, 1622-1629.	2.5	1
149	Control Of Isomerization In Ensembles Of Nonrigid Molecules based on Classical and Quantum-mechanical Models, LiCN. , 2006, , .		1
150	Mean first-passage times for solvated LiCN isomerization at intermediate to high temperatures. Journal of Chemical Physics, 2022, 156, 034103.	3.0	1
151	PERIODIC ORBITS AND CHAOS IN THE CLASSICAL AND QUANTUM MECHANICS OF MOLECULAR SYSTEMS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1999, 09, 2285-2290.	1.7	0
152	Different time scales in wave function intensity statistics. Physical Review E, 2003, 67, 066212.	2.1	0
153	Irreversibility with quantum trajectories. Physical Review E, 2005, 72, 046219.	2.1	0
154	Quantum and Classical Resonances. AIP Conference Proceedings, 2007, , .	0.4	0
155	Global dynamical structure in a 3D model for LiCN. AIP Conference Proceedings, 2007, , .	0.4	0
156	Irregular many-body dynamics of spinor Bose-Einstein condensates in an optical lattice. Physical Review E, 2008, 78, 016204.	2.1	0
157	Scarring by short pieces of bifurcated periodic orbits. Europhysics Letters, 2011, 93, 60005.	2.0	0
158	Classical Invariants in the Quantum Mechanics of Chaotic Systems. Emergence, Complexity and Computation, 2014, , 119-129.	0.3	0
159	Scars in Groups of Eigenfunctions. NATO ASI Series Series B: Physics, 1994, , 287-294.	0.2	0
160	Periodic Orbits and Quantum Mechanics of Molecular Hamiltonian Systems. , 1999, , 310-313.		0
161	Adapting reservoir computing to solve the SchrÃ¶dinger equation. Chaos, 2022, 32, 063111.	2.5	0