Nicolas Chamel

List of Publications by Year
in descending order

124 papers	5,179 citations	94433 37 h-index	88630 70 g-index
127 all docs	127 docs citations	127 times ranked	1969 citing authors

#	Article	IF	Citations
1	Physics of Neutron Star Crusts. Living Reviews in Relativity, 2008, 11, 10.	26.7	478
2	Further explorations of Skyrme-Hartree-Fock-Bogoliubov mass formulas. XII. Stiffness and stability of neutron-star matter. Physical Review C, 2010, 82, .	2.9	399
3	Skyrme-Hartree-Fock-Bogoliubov Nuclear Mass Formulas: Crossing the 0.6ÂMeV Accuracy Threshold with Microscopically Deduced Pairing. Physical Review Letters, 2009, 102, 152503.	7.8	354
4	Further explorations of Skyrme-Hartree-Fock-Bogoliubov mass formulas. XIII. The 2012 atomic mass evaluation and the symmetry coefficient. Physical Review C, 2013, 88, .	2.9	260
5	Analytical representations of unified equations of state for neutron-star matter. Astronomy and Astrophysics, 2013, 560, A48.	5.1	180
6	Crustal Entrainment and Pulsar Glitches. Physical Review Letters, 2013, 110, 011101.	7.8	166
7	Neutron conduction in the inner crust of a neutron star in the framework of the band theory of solids. Physical Review C, 2012, 85, .	2.9	140
8	Hartree-Fock-Bogoliubov nuclear mass model with 0.50 MeV accuracy based on standard forms of Skyrme and pairing functionals. Physical Review C, 2013, 88, .	2.9	133
9	Plumbing Neutron Stars to New Depths with the Binding Energy of the Exotic Nuclide<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mmultiscripts><mml:mi>Zn</mml:mi><mml:mprescripts /><mml:none /><mml:mn>82</mml:mn></mml:mmultiscripts></mml:math>. Physical Review Letters, 2013, 110, 041101.	7.8	129
10	Properties of the outer crust of neutron stars from Hartree-Fock-Bogoliubov mass models. Physical Review C, 2011, 83, .	2.9	115
11	Inner crust of neutron stars with mass-fitted Skyrme functionals. Physical Review C, 2012, 85, .	2.9	115
12	Further explorations of Skyrme-Hartree-Fock-Bogoliubov mass formulas. XI. Stabilizing neutron stars against a ferromagnetic collapse. Physical Review C, 2009, 80, .	2.9	106
13	Further explorations of Skyrmeâ€“Hartreeâ€“Fockâ€“Bogoliubov mass formulas. IX: Constraint of pairing force to 1S0 neutron-matter gap. Nuclear Physics A, 2008, 812, 72-98.	1.5	101
14	Further explorations of Skyrme-Hartree-Fock-Bogoliubov mass formulas. XVI. Inclusion of self-energy effects in pairing. Physical Review C, 2016, 93, .	2.9	100
15	Unified equations of state for cold non-accreting neutron stars with Brussels-Montreal functionals. I. Role of symmetry energy. Monthly Notices of the Royal Astronomical Society, 0, , .	4.4	82
16	Band structure effects for dripped neutrons in neutron star crust. Nuclear Physics A, 2005, 747, 109-128.	1.5	77
17	Semi-classical equation of state and specific-heat expressions with proton shell corrections for the inner crust of a neutron star. Physical Review C, 2008, 77, .	2.9	70
18	Entrainment coefficient and effective mass for conduction neutrons in neutron star crust: simple microscopic models. Nuclear Physics A, 2005, 748, 675-697.	1.5	65

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19	ON THE MAXIMUM MASS OF NEUTRON STARS. International Journal of Modern Physics E, 2013, 22, 1330018.	1.0	65
20	Validity of the Wigner-Seitz approximation in neutron star crust. Physical Review C, 2007, 75, .	2.9	64
21	Entrainment parameters in a cold superfluid neutron star core. Physical Review C, 2006, 73, .	2.9	63
22	Effective mass of free neutrons in neutron star crust. Nuclear Physics A, 2006, 773, 263-278.	1.5	62
23	Phase transitions in dense matter and the maximum mass of neutron stars. Astronomy and Astrophysics, 2013, 553, A22.	5.1	59
24	Superfluidity and Superconductivity in Neutron Stars. Journal of Astrophysics and Astronomy, 2017, 38, 1.	1.0	58
25	Masses of neutron stars and nuclei. Physical Review C, 2011, 84, .	2.9	57
26	Low-energy collective excitations in the neutron star inner crust. Physical Review C, 2013, 87, .	2.9	56
27	Neutron star properties with unified equations of state of dense matter. Astronomy and Astrophysics, 2013, 559, A128.	5.1	56
28	Two-fluid models of superfluid neutron star cores. Monthly Notices of the Royal Astronomical Society, 2008, 388, 737-752.	4.4	53
29	Phases of Dense Matter in Compact Stars. Astrophysics and Space Science Library, 2018, , 337-400.	2.7	53
30	Neutron drip transition in accreting and nonaccreting neutron star crusts. Physical Review C, 2015, 91, .	2.9	43
31	COVARIANT ANALYSIS OF NEWTONIAN MULTI-FLUID MODELS FOR NEUTRON STARS I: MILNEâ€“CARTAN STRUCTURE AND VARIATIONAL FORMULATION. International Journal of Modern Physics D, 2004, 13, 291-325.	2.1	42
32	Properties of the outer crust of strongly magnetized neutron stars from Hartree-Fock-Bogoliubov atomic mass models. Physical Review C, 2012, 86, .	2.9	41
33	Effect of entrainment on stress and pulsar glitches in stratified neutron star crust. Monthly Notices of the Royal Astronomical Society, 2006, 368, 796-808.	4.4	40
34	Superfluid Dynamics in Neutron Star Crusts. Progress of Theoretical Physics Supplement, 2010, 186, 9-16.	0.1	40
35	Stability of super-Chandrasekhar magnetic white dwarfs. Physical Review D, 2013, 88, .	4.7	39
36	Symmetry energy: nuclear masses and neutron stars. European Physical Journal A, 2014, 50, 1.	2.5	39

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37	Spin and spin-isospin instabilities in asymmetric nuclear matter at zero and finite temperatures using Skyrme functionals. Physical Review C, 2010, 82, .	2.9	38
38	Unified equations of state for cold nonaccreting neutron stars with Brussels-Montreal functionals. II. Pasta phases in semiclassical approximation. Physical Review C, 2020, 101, .	2.9	38
39	ENTRAINMENT COEFFICIENT AND EFFECTIVE MASS FOR CONDUCTION NEUTRONS IN NEUTRON STAR CRUST: MACROSCOPIC TREATMENT. International Journal of Modern Physics D, 2006, 15, 777-803.	2.1	37
40	The decompression of the outer neutron star crust and r-process nucleosynthesis. Astronomy and Astrophysics, 2011, 531, A78.	5.1	37
41	Giant pulsar glitches and the inertia of neutron star crusts. Physical Review D, 2016, 94, .	4.7	36
42	Unified description of neutron superfluidity in the neutron-star crust with analogy to anisotropic multiband BCS superconductors. Physical Review C, 2010, 81, .	2.9	35
43	Relativistic mean-field mass models. European Physical Journal A, 2016, 52, 1.	2.5	34
44	Crustal heating in accreting neutron stars from the nuclear energy-density functional theory. Astronomy and Astrophysics, 2018, 620, A105.	5.1	34
45	Effective contact pairing forces from realistic calculations in infinite homogeneous nuclear matter. Physical Review C, 2010, 82, .	2.9	33
46	Entrainment in Superfluid Neutron-Star Crusts: Hydrodynamic Description and Microscopic Origin. Journal of Low Temperature Physics, 2017, 189, 328-360.	1.4	32
47	Global numerical simulations of the rise of vortex-mediated pulsar glitches in full general relativity. Monthly Notices of the Royal Astronomical Society, 2017, 464, 4641-4657.	4.4	32
48	COVARIANT ANALYSIS OF NEWTONIAN MULTI-FLUID MODELS FOR NEUTRON STARS II: STRESSâ€“ENERGY TENSORS AND VIRIAL THEOREMS. International Journal of Modern Physics D, 2005, 14, 717-748.	2.1	29
49	Breathing-mode measurements in Sn isotopes and isospin dependence of nuclear incompressibility. Physical Review C, 2010, 82, .	2.9	29
50	Role of Landau quantization on the neutron-drip transition in magnetar crusts. Physical Review C, 2015, 91, .	2.9	29
51	Role of proton pairing in a semimicroscopic treatment of the inner crust of neutron stars. Physical Review C, 2015, 91, .	2.9	29
52	Binary and ternary ionic compounds in the outer crust of a cold nonaccreting neutron star. Physical Review C, 2016, 94, .	2.9	28
53	Crystallization of the outer crust of a non-accreting neutron star. Astronomy and Astrophysics, 2020, 633, A149.	5.1	28
54	Crystallization of the inner crust of a neutron star and the influence of shell effects. Astronomy and Astrophysics, 2020, 635, A84.	5.1	28

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55	COVARIANT ANALYSIS OF NEWTONIAN MULTI-FLUID MODELS FOR NEUTRON STARS III: TRANSVECTIVE, VISCOUS, AND SUPERFLUID DRAG DISSIPATION. International Journal of Modern Physics D, 2005, 14, 749-774.	2.1	27
56	Role of the symmetry energy and the neutron-matter stiffness on the tidal deformability of a neutron star with unified equations of state. Physical Review C, 2019, 100, .	2.9	27
57	Self-interaction errors in nuclear energy density functionals. Physical Review C, 2010, 82, .	2.9	26
58	On the maximum mass of magnetized white dwarfs. Monthly Notices of the Royal Astronomical Society, 2017, 469, 95-109.	4.4	25
59	Covariant Newtonian and relativistic dynamics of (magneto)-elastic solid model for neutron star crust. General Relativity and Gravitation, 2006, 38, 83-119.	2.0	24
60	Electron capture instability in magnetic and nonmagnetic white dwarfs. Physical Review D, 2015, 92, .	4.7	24
61	Vortex pinning in the superfluid core of neutron stars and the rise of pulsar glitches. Monthly Notices of the Royal Astronomical Society: Letters, 2020, 493, L98-L102.	3.3	20
62	Effect of BCS pairing on entrainment in neutron superfluid current in neutron star crust. Nuclear Physics A, 2005, 759, 441-464.	1.5	19
63	Brussels–Montreal Nuclear Energy Density Functionals, from Atomic Masses to Neutron Stars. Acta Physica Polonica B, 2015, 46, 349.	0.8	19
64	Electron exchange and polarization effects on electron captures and neutron emissions by nuclei in white dwarfs and neutron stars. Physical Review D, 2016, 93, .	4.7	18
65	Linear response theory and neutrino mean free path using Brussels-Montreal Skyrme functionals. Physical Review C, 2014, 90, .	2.9	17
66	Role of the symmetry energy on the neutron-drip transition in accreting and nonaccreting neutron stars. Physical Review C, 2016, 93, .	2.9	17
67	Role of Landau-Rabi quantization of electron motion on the crust of magnetars within the nuclear energy density functional theory. Physical Review C, 2019, 99, .	2.9	15
68	Role of the crust in the tidal deformability of a neutron star within a unified treatment of dense matter. Physical Review C, 2020, 101, .	2.9	15
69	Recent breakthroughs in Skyrme-Hartree-Fock-Bogoliubov mass formulas. European Physical Journal A, 2009, 42, 547.	2.5	14
70	Unified equations of state for cold nonaccreting neutron stars with Brussels-Montreal functionals. III. Inclusion of microscopic corrections to pasta phases. Physical Review C, 2022, 105, .	2.9	14
71	Constraints on the equation of state of cold dense matter from nuclear physics and astrophysics. EPJ Web of Conferences, 2014, 66, 07005.	0.3	13
72	Experimental constraints on shallow heating in accreting neutron-star crusts. Physical Review C, 2020, 102, .	2.9	13

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73	Neutron specific heat in the crust of neutron stars from the nuclear band theory. Physical Review C, 2009, 79, .	2.9	12
74	Maximum strength of the magnetic field in the core of the most massive white dwarfs. Physical Review D, 2014, 90, .	4.7	12
75	Analytical determination of the structure of the outer crust of a cold nonaccreted neutron star. Physical Review C, 2020, 101, .	2.9	12
76	Force on a neutron quantized vortex pinned to proton fluxoids in the superfluid core of cold neutron stars. Monthly Notices of the Royal Astronomical Society, 2020, 493, 382-389.	4.4	11
77	Unified equation of state for neutron stars and supernova cores using the nuclear energy-density functional theory. Journal of Physics: Conference Series, 2012, 342, 012003.	0.4	10
78	Entrainment effects in neutron-proton mixtures within the nuclear energy-density functional theory: Low-temperature limit. Physical Review C, 2019, 100, .	2.9	10
79	Microscopic mass models for astrophysics. International Journal of Mass Spectrometry, 2013, 349-350, 57-62.	1.5	9
80	The LOFT mission concept: a status update. Proceedings of SPIE, 2016, , .	0.8	9
81	Neutron-star matter within the energy-density functional theory and neutron-star structure. , 2015, , .		7
82	Heat capacity of low-density neutron matter: from quantum to classical regimes. Monthly Notices of the Royal Astronomical Society, 2015, 448, 1887-1892.	4.4	7
83	Collective excitations in neutron-star crusts. Journal of Physics: Conference Series, 2016, 665, 012065.	0.4	7
84	Latest results of Skyrme-Hartree-Fock-Bogoliubov mass formulas. Journal of Physics: Conference Series, 2016, 665, 012038.	0.4	7
85	Entrainment effects in neutron-proton mixtures within the nuclear energy-density functional theory. II. Finite temperatures and arbitrary currents. Physical Review C, 2021, 103, .	2.9	7
86	Heating in Magnetar Crusts from Electron Captures. Universe, 2021, 7, 193.	2.5	7
87	Properties of a quantum vortex in neutron matter at finite temperatures. Physical Review C, 2021, 104, .	2.9	7
88	1S0 Pairing Gaps, Chemical Potentials and Entrainment Matrix in Superfluid Neutron-Star Cores for the Brusselsâ€“Montreal Functionals. Universe, 2021, 7, 470.	2.5	7
89	Landau quantization and neutron emissions by nuclei in the crust of a magnetar. Journal of Physics: Conference Series, 2016, 724, 012034.	0.4	6
90	Role of dense matter in tidal deformations of inspiralling neutron stars and in gravitational waveforms with unified equations of state. Physical Review C, 2021, 103, .	2.9	6

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91	Tidal deformability of crystallized white dwarfs in full general relativity. Physical Review D, 2022, 106, .	4.7	6
92	Effects induced by nuclear deformations and electron correlations on the ground-state energy of low and multiply charged helium like ions in high-temperature plasmas. Journal of Physics: Conference Series, 2010, 253, 012075.	0.4	5
93	Pairing: From Atomic Nuclei to Neutron Star Crusts. , 2013, , 284-296.		5
94	Analytical determination of the structure of the outer crust of a cold nonaccreted neutron star: Extension to strongly quantizing magnetic fields. Physical Review C, 2020, 101, .	2.9	5
95	On the Lie subalgebra of Killingâ€“Milne and Killingâ€“Cartan vector fields in Newtonian spacetime. International Journal of Modern Physics D, 2015, 24, 1550018.	2.1	4
96	Binary and ternary ionic compounds in the outer crust of accreted neutron stars. Journal of Physics: Conference Series, 2017, 932, 012039.	0.4	4
97	Role of the symmetry energy on the structure of neutron stars with unified equations of state. AIP Conference Proceedings, 2019, , .	0.4	4
98	Generalization of the Kuttaâ€“Joukowski theorem for the hydrodynamic forces acting on a quantized vortex. International Journal of Modern Physics B, 2020, 34, 2050099.	2.0	4
99	The crust of neutron stars. AIP Conference Proceedings, 2007, , .	0.4	3
100	Hartree-Fock-Bogoliubov Mass Models and the Equation of State of Neutron-Star Crusts. , 2009, , .		3
101	Nuclear inputs for nucleosynthesis applications. , 2009, , .		3
102	A stellar superfluid. Physics Magazine, 2011, 4, .	0.1	3
103	Landau Quantisation of Electron Motion in the Crust of Highly Magnetised Neutron Stars. Progress in Theoretical Chemistry and Physics, 2017, , 181-191.	0.2	3
104	Role of nuclear spin-orbit coupling on the constitution of the outer crust of a nonaccreting neutron star. EPJ Web of Conferences, 2017, 137, 09001.	0.3	2
105	Vortex pinning in the superfluid core of relativistic neutron stars. Monthly Notices of the Royal Astronomical Society, 2021, 503, 1407-1417.	4.4	2
106	HFB Mass Models for Nucleosynthesis Applications. Journal of the Korean Physical Society, 2011, 59, 2100-2105.	0.7	2
107	Publisher's Note: Neutron conduction in the inner crust of a neutron star in the framework of the band theory of solids [Phys. Rev. C85, 035801 (2012)]. Physical Review C, 2012, 85, .	2.9	1
108	How â€œfreeâ€•are free neutrons in neutron-star crusts and what does it imply for pulsar glitches?. Proceedings of the International Astronomical Union, 2012, 8, 73-76.	0.0	1

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109	Does a hadron-quark phase transition in dense matter preclude the existence of massive neutron stars?. Proceedings of the International Astronomical Union, 2012, 8, 356-358.	0.0	1
110	NEUTRON STAR CRUST BEYOND THE WIGNER-SEITZ APPROXIMATION. , 2008, , .		1
111	Onset of Electron Captures and Shallow Heating in Magnetars. Universe, 2022, 8, 328.	2.5	1
112	Publisher's Note: Semi-classical equation of state and specific-heat expressions with proton shell corrections for the inner crust of a neutron star [Phys. Rev. C 77, 065805 (2008)]. Physical Review C, 2008, 78, .	2.9	0
113	Neutron Drip-Line Topography. , 2009, , .		0
114	Generalized equation of state for cold superfluid neutron stars. , 2011, , .		0
115	The r-process nucleosynthesis during the decompression of neutronised matter. , 2011, , .		0
116	Unified description of dense matter in neutron stars and magnetars. Proceedings of the International Astronomical Union, 2012, 8, 359-361.	0.0	0
117	Nuclear induces effects and mass correlations in low and multiply charged helium-like ions. Journal of Physics: Conference Series, 2016, 724, 012048.	0.4	0
118	Neutrino mean free path in neutron matter with Brussels-Montreal Skyrme functionals. Journal of Physics: Conference Series, 2016, 665, 012067.	0.4	0
119	Symmetry energy from nuclear masses and neutron-star observations using generalised Skyrme functionals. Journal of Physics: Conference Series, 2016, 665, 012066.	0.4	0
120	Towards a unified description of magnetar crusts. AIP Conference Proceedings, 2019, , .	0.4	0
121	Stratification of the outer crust of magnetars and nuclear abundances. AIP Conference Proceedings, 2019, , .	0.4	0
122	Unified equation of state for the outer and inner crusts of magnetars. Journal of Physics: Conference Series, 2020, 1555, 012015.	0.4	0
123	De lâ€™hypothÃ¨se dâ€™Ã©toiles aussi denses que les noyaux atomiques Ã la dÃ©couverte fortuite des pulsars. Histoire De La Recherche Contemporaine, 2012, , 160-167.	0.1	0
124	UNIFIED EQUATION OF STATE FOR SUPERNOVA CORES AND NEUTRON STARS USING THE ENERGY-DENSITY FUNCTIONAL THEORY. , 2013, , .		0