

# Xing-Qiu Chen

## List of Publications by Year in descending order

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140  
papers

10,854  
citations

57631

44  
h-index

31759

101  
g-index

145  
all docs

145  
docs citations

145  
times ranked

10116  
citing authors

#	ARTICLE	IF	CITATIONS
1	Modeling hardness of polycrystalline materials and bulk metallic glasses. <i>Intermetallics</i> , 2011, 19, 1275-1281.	1.8	1,811
2	Dirac semimetal and topological phase transitions in $\text{Bi}_3\text{Te}_4$ ( $\text{Bi}_3\text{Te}_4$ ) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 692 Td ( $\text{Bi}_3\text{Te}_4$ )	1.1	1,520
3	Chemical vapor deposition of layered two-dimensional $\text{MoSi}_2\text{N}_4$ materials. <i>Science</i> , 2020, 369, 670-674.	6.0	556
4	Band Gap Narrowing of Titanium Oxide Semiconductors by Noncompensated Anion-Cation Codoping for Enhanced Visible-Light Photoactivity. <i>Physical Review Letters</i> , 2009, 103, 226401.	2.9	347
5	Flexible layer-structured $\text{Bi}_2\text{Te}_3$ thermoelectric on a carbon nanotube scaffold. <i>Nature Materials</i> , 2019, 18, 62-68.	13.3	316
6	Half-Heusler Compounds as a New Class of Three-Dimensional Topological Insulators. <i>Physical Review Letters</i> , 2010, 105, 096404.	2.9	306
7	Thermoelectric performance of a metastable thin-film Heusler alloy. <i>Nature</i> , 2019, 576, 85-90.	13.7	232
8	An Unusual Strong Visible-Light Absorption Band in Red Anatase $\text{TiO}_2$ Photocatalyst Induced by Atomic Hydrogen-Occupied Oxygen Vacancies. <i>Advanced Materials</i> , 2018, 30, 1704479.	11.1	231
9	Intercalated architecture of MA2Z4 family layered van der Waals materials with emerging topological, magnetic and superconducting properties. <i>Nature Communications</i> , 2021, 12, 2361.	5.8	199
10	Ab initio prediction of half-metallic properties for the ferromagnetic Heusler alloys $\text{Co}_2\text{MSi}$ ( $\text{M}=\text{Ti}, \text{V}, \text{Cr}$ ). <i>Journal of Applied Physics</i> , 2006, 100, 113901.	1.1	180
11	Dirac Node Lines in Pure Alkali Earth Metals. <i>Physical Review Letters</i> , 2016, 117, 096401.	2.9	174
12	Families of Superhard Crystalline Carbon Allotropes Constructed via Cold Compression of Graphite and Nanotubes. <i>Physical Review Letters</i> , 2012, 108, 135501.	2.9	167
13	Extra-electron induced covalent strengthening and generalization of intrinsic ductile-to-brittle criterion. <i>Scientific Reports</i> , 2012, 2, 718.	1.6	165
14	Vacancy Mechanism of High Oxygen Solubility and Nucleation of Stable Oxygen-Enriched Clusters in Fe. <i>Physical Review Letters</i> , 2007, 99, 225502.	2.9	162
15	Electronic and Structural Origin of Ultrahigh Compressibility of 5d Transition-Metal Diborides $\text{MB}_2$ ( $\text{M}=\text{W}$ ), Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 692 Td ( $\text{MB}_2$ )	2.9	160
16	Structure, bonding, and possible superhardness of $\text{CrB}_4$ . <i>Physical Review B</i> , 2012, 85, .	1.1	154
17	Enhancing Charge Separation in Metallic Photocatalysts: A Case Study of the Conducting Molybdenum Dioxide. <i>Advanced Functional Materials</i> , 2016, 26, 4445-4455.	7.8	154
18	Monoclinic dibismuth tetraoxide: A new visible-light-driven photocatalyst for environmental remediation. <i>Applied Catalysis B: Environmental</i> , 2015, 176-177, 444-453.	10.8	153

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19	Hardness of $T$ -carbon: Density functional theory calculations. Physical Review B, 2011, 84, .	1.1	140
20	First-principles modeling of anisotropic anodic dissolution of metals and alloys in corrosive environments. Acta Materialia, 2017, 130, 137-146.	3.8	129
21	Unconventional superconducting phase in the weakly correlated noncentrosymmetric $Mo_3Pt$ . Physical Review B, 2010, 82, .	1.1	121
22	Rocksalt SnS and SnSe: Native topological crystalline insulators. Physical Review B, 2013, 88, .	1.1	104
23	Computation and data driven discovery of topological phononic materials. Nature Communications, 2021, 12, 1204.	5.8	98
24	Spin transition in a four-coordinate iron oxide. Nature Chemistry, 2009, 1, 371-376.	6.6	97
25	Topological quantum catalyst: Dirac nodal line states and a potential electrocatalyst of hydrogen evolution in the TiSi family. Science China Materials, 2018, 61, 23-29.	3.5	97
26	Superconductivity in Novel Ge-Based Skutterudites: $SrBaPt_4Ge$ . Physical Review Letters, 2007, 99, 217001.	2.9	90
27	Computational materials discovery: the case of the $W\text{-}B$ system. Acta Crystallographica Section C, Structural Chemistry, 2014, 70, 85-103.	0.2	87
28	Vacancy formation enthalpies of high-entropy FeCoCrNi alloy via first-principles calculations and possible implications to its superior radiation tolerance. Journal of Materials Science and Technology, 2018, 34, 355-364.	5.6	87
29	New Family of Three-Dimensional Topological Insulators with Antiperovskite Structure. Physical Review Letters, 2010, 105, 216406.	2.9	80
30	Inclusion flotation-driven channel segregation in solidifying steels. Nature Communications, 2014, 5, 5572.	5.8	79
31	Coexistent three-component and two-component Weyl phonons in TiS, ZrSe, and HfTe. Physical Review B, 2018, 97, .	1.1	75
32	Interstitial-boron solution strengthened $WB_3$ . Applied Physics Letters, 2013, 103, .	1.5	72
33	First-principles studies of structural stabilities and enthalpies of formation of refractory intermetallics: TM and TM <sub>3</sub> ( $T = Ti, Zr, Hf$ ; $M = Ru, Rh, Pd, Os, Ir, Pt$ ). Intermetallics, 2012, 28, 16-24.	1.8	70
34	Anisotropic magnetic couplings and structure-driven canted to collinear transitions in $Sr_2Ru_1-xMx$ magnetically constrained noncollinear DFT. Physical Review B, 2015, 92, .	2.1	70
35	Topological phonons in graphene. Physical Review B, 2020, 101, .	1.1	70
36	Electronic, optical, and mechanical properties of superhard cold-compressed phases of carbon. Applied Physics Letters, 2011, 99, .	1.5	68

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37	Coexistence of intrinsic piezoelectricity and ferromagnetism induced by small biaxial strain in septuple-atomic-layer $\text{VSi}_2\text{P}_4$ . Physical Chemistry Chemical Physics, 2020, 22, 28359-28364.	1.3	67
38	Ab initiostudy of ground-state properties of the Laves phase compounds $\text{TiCr}_2$ , $\text{ZrCr}_2$ , and $\text{HfCr}_2$ . Physical Review B, 2005, 71, .	1.1	64
39	Phononic Weyl nodal straight lines in $\text{MgB}_2$ . Physical Review B, 2020, 101, .	1.1	63
40	Computational and experimental study of phase stability, cohesive properties, magnetism and electronic structure of $\text{TiMn}_2$ . Acta Materialia, 2003, 51, 1239-1247.	3.8	55
41	First-principles modeling of hardness in transition-metal diborides. Physical Review B, 2009, 80, .	1.1	52
42	First-principles modeling of the hydrogen evolution reaction and its application in electrochemical corrosion of Mg. Acta Materialia, 2020, 183, 377-389.	3.8	50
43	Variable-composition structural optimization and experimental verification of $\text{MnB}_3$ and $\text{MnB}_4$ . Physical Chemistry Chemical Physics, 2014, 16, 15866-15873.	1.3	49
44	Noninvasively Modifying Band Structures of Wide-Bandgap Metal Oxides to Boost Photocatalytic Activity. Advanced Materials, 2018, 30, e1706259.	11.1	48
45	Half-Heusler alloys: Enhancement of ZT after severe plastic deformation (ultra-low thermal) $T_j$ ETQq1 1 0.784314 rgBT /Overlock 10 T	3.8	44
46	Miedema's model revisited: The parameter for Ti, Zr, and Hf. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2006, 30, 266-269.	0.7	43
47	Prediction of novel stable compounds in the Mg-Si-O system under exoplanet pressures. Scientific Reports, 2016, 5, 18347.	1.6	43
48	Structure effect on intrinsic piezoelectricity in septuple-atomic-layer $\text{MSi}_2\text{N}_4$ ( $M = \text{Mo}$ and $\text{W}$ ). Computational Materials Science, 2021, 188, 110223.	1.4	43
49	Phononic Weyl points and one-way topologically protected nontrivial phononic surface arc states in noncentrosymmetric WC-type materials. Physical Review B, 2019, 99, .	1.1	42
50	Ab initiostudy of ground-state properties of the Laves-phase compound $\text{ZrMn}_2$ . Physical Review B, 2005, 72, .	1.1	40
51	The electronic, elastic, and structural properties of $\text{TiPd}$ intermetallics and associated hydrides from first principles calculations. Intermetallics, 2010, 18, 998-1006.	1.8	40
52	Relativistic $\text{GW}+\text{BSE}$ study of the optical properties of Ruddlesden-Popper iridates. Physical Review Materials, 2018, 2, .	1.1	40
53	Bonding and strength of solid nitrogen in the cubic gauche (cg-N) structure. Physical Review B, 2008, 77, .	1.1	39

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55	Superconductivity and spin fluctuations in {Th,U}Pt <sub>4</sub> Ge <sub>12</sub> skutterudites. Physical Review B, 2008, 78, .	1.1	38
56	Tuning the vertical location of helical surface states in topological insulator heterostructures via dual-proximity effects. Scientific Reports, 2013, 3, 1233.	1.6	38
57	Effects of dilute substitutional solutes on interstitial carbon in $\text{Fe}$ -Fe: Interactions and associated carbon diffusion from first-principles calculations. Physical Review B, 2014, 90, .	1.1	38
58	Topological phononic materials: Computation and data. Innovation(China), 2021, 2, 100134.	5.2	38
59	The standard enthalpies of formation of binary intermetallic compounds of some late 4d and 5d transition metals by high temperature direct synthesis calorimetry. Journal of Alloys and Compounds, 2010, 492, 105-115.	2.8	36
60	Structural transitions and transport-half-metallic ferromagnetism in $\text{LaMnO}_3$ at elevated pressure. Physical Review B, 2012, 85, .	1.1	36
61	Ground-state phase in the three-dimensional topological Dirac semimetal $\text{Na}_3\text{Bi}$ . Physical Review B, 2014, 89, .		
62	Manufacture-friendly nanostructured metals stabilized by dual-phase honeycomb shell. Nature Communications, 2022, 13, 2034.	5.8	33
63	Strain-induced onset of nontrivial topological insulating states in $\text{ZrTe}_2$ compounds		

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73	Site preference, thermodynamic, and magnetic properties of the ternary Laves phase $Ti(Fe_{1-x}Al_x)_2$ with the crystal structure of the $MgZn_2$ -type. International Journal of Materials Research, 2006, 97, 450-460.	0.8	24
74	From trans-polyacetylene to zigzag-edged graphene nanoribbons. Chemical Physics Letters, 2009, 483, 120-123.	1.2	24
75	Two-dimensional layered $MSi_2N_4$ (M = Mo, W) as promising thermal management materials: a comparative study. Physical Chemistry Chemical Physics, 2022, 24, 3086-3093.	1.3	24
76	Comment on "Enthalpies of formation of binary Laves phases" [Intermetallics, 10 (2002) 579-595]. Intermetallics, 2004, 12, 59-62.	1.8	23
77	The standard enthalpies of formation of some intermetallic compounds of early 4d and 5d transition metals by high temperature direct synthesis calorimetry. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2009, 33, 55-62.	0.7	23
78	Underlying Topological Dirac Nodal Line Mechanism of the Anomalously Large Electron-Phonon Coupling Strength on a Be (0001) Surface. Physical Review Letters, 2019, 123, 136802.	2.9	23
79	Crystal structures and constitution of the binary system iridium-boron. Science China Materials, 2015, 58, 649-668.	3.5	22
80	The mechanism of $\hat{\Gamma}_2$ to $\hat{\Gamma}_1$ - $Al_2O_3$ phase transformation. Journal of Alloys and Compounds, 2021, 863, 158666.	2.8	22
81	High-throughput modeling of atomic diffusion migration energy barrier of fcc metals. Progress in Natural Science: Materials International, 2019, 29, 341-348.	1.8	20
82	Crystal structure, phase stability and elastic properties of the Laves phase $ZrTiCu_2$ . Intermetallics, 2008, 16, 651-657.	1.8	19
83	Polymeric forms of carbon in dense lithium carbide. Journal of Physics Condensed Matter, 2010, 22, 292201.	0.7	19
84	Density functional study of structural and phase stabilities for $RMn_2$ Laves phases (R = Sc, Y, Lu, Ti, Zr.) Tj ETQq0 0 0.rgBT /Overlock 10 T	2.8	18
85	On the ternary Laves phases $\{Sc,Ti\}_2M_3Si$ (M=Cr, Mn, Fe, Co, Ni) with $MgZn_2$ -type. Journal of Alloys and Compounds, 2007, 429, 10-18.	2.8	18
86	Laves phases in the ternary systems $Ti\{Pd, Pt\}Al$ . Intermetallics, 2009, 17, 336-342.	1.8	18
87	Stable compositions and structures in the $Na\text{-}Bi$ system. Physical Chemistry Chemical Physics, 2015, 17, 6933-6947.	1.3	18
88	Fast and Huge Anisotropic Diffusion of Cu (Ag) and Its Resistance on the Sn Self-diffusivity in Solid $\hat{\Gamma}_2\text{-}Sn$ . Journal of Materials Science and Technology, 2016, 32, 121-128.	5.6	18
89	Computational design of flexible electrides with nontrivial band topology. Physical Review Materials, 2019, 3, .	0.9	18
90	A new polymorphic material? Structural degeneracy of $ZrMn_2$ . Europhysics Letters, 2004, 67, 807-813.	0.7	17

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91	Superconductivity and Magnetism in $\text{MPt}_4\text{Ge}_{12}$ , M = Ca, Ba, Sr, Eu. Journal of the Physical Society of Japan, 2008, 77, 121-127.	0.7	17
92	Anisotropy in electronic, optical, and mechanical properties of superhard body-centered tetragonal C4 phase of carbon. Applied Physics Letters, 2010, 97, 061910.	1.5	17
93	Atom order and thermodynamic properties of the ternary Laves phase $\text{Ti}(\text{Ti}_y\text{Ni}_x\text{Al}_z)^2$ . Zeitschrift Fur Kristallographie - Crystalline Materials, 2006, 221, .	0.4	16
94	Two-dimensional topological semimetal states in monolayer $\text{Cu}_2\text{Fe}_2$ , and $\text{Fe}_2$ .	1.1	16
95	Thermodynamic modeling of Laves phases in the TaV system: Reassessment using first-principles results. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2011, 35, 103-108.	0.7	15
96	Vacancy formation enthalpy of filled d-band noble metals by hybrid functionals. Physical Review B, 2014, 90, .	1.1	15
97	Ductile-to-brittle transition and materials' resistance to amorphization by irradiation damage. RSC Advances, 2016, 6, 44561-44568.	1.7	14
98	Evolution of local atomic structure during solidification of $\text{U}_{11}\text{Nb}_{12}$ liquid: An ab initio molecular dynamics study. Journal of Alloys and Compounds, 2019, 787, 267-275.	2.8	14
99	Six-membered-ring inorganic materials: definition and prospects. National Science Review, 2021, 8, nwaa248.	4.6	14
100	First-principles study on the effects of twin boundaries on anodic dissolution of Mg. Physical Review Materials, 2019, 3, .	0.9	14
101	Structural, thermodynamic, and transport properties of Laves-phase $\text{ZrMn}_2$ from x-ray and neutron diffraction and first principles. Physical Review B, 2006, 74, .	1.1	13
102	Ab initio study of structural stability, elastic, vibrational, and electronic properties of $\text{TiPd}_2$ . Physical Review B, 2007, 76, .	1.1	13
103	Pressure-induced behavior of the hydrogen-dominant compound $\text{SiH}_4(\text{H}_2)_2$ from first-principles calculations. Physical Review B, 2010, 82, .	1.1	13
104	Crystal chemistry of the G-phases in the {Ti, Zr, Hf}-Ni-Si systems. Journal of Solid State Chemistry, 2007, 180, 733-741.	1.4	12
105	Ab initio study of structural, magnetic, vibrational, and thermodynamic properties of the Laves-phase compound $\text{HfMn}_2$ . Physical Review B, 2007, 76, .	1.1	11
106	Topological massive Dirac fermions in $\text{W}_2\text{tungsten}$ . Physical Review B, 2019, 99, .	1.1	11
107	Topological nodal line and superconductivity of highly thermally stable two-dimensional $\text{TiB}_4$ . Physical Review B, 2021, 104, .	1.1	11
108	Thermally stable coherent domain boundaries in complex-structured $\text{Cr}_2\text{Nb}$ intermetallics. Philosophical Magazine, 2016, 96, 58-70.	0.7	10



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109	A simple and efficient criterion for ready screening of potential topological insulators. Science Bulletin, 2017, 62, 1649-1653.	4.3	10
110	Structural, elastic, and electronic properties of topological semimetal WC-type MX family by first-principles calculation*. Chinese Physics B, 2019, 28, 077105.	0.7	10
111	The system Ta $\delta$ -Si: Crystal structure and phase equilibria. Journal of Solid State Chemistry, 2012, 187, 114-123.	1.4	9
112	Combined fast reversible liquidlike elastic deformation with topological phase transition in $\text{NaMn}_3\text{S}_7$ . Physical Review B, 2015, 92, .	1.1	9
113	First-Principles Investigation of Thermodynamic Decomposition of Interfacial Oxides in Hot Compression Bonding. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 874-886.	1.1	9
114	Thickness dependent structural and electronic properties of CuO grown on SrTiO <sub>3</sub> (100): a hybrid density functional theory study. Journal of Physics Condensed Matter, 2011, 23, 045004.	0.7	8
115	First-principles study of the large-gap three-dimensional topological insulators $\text{M}_3\text{Bi}_2$ (M=Ca, Sr, Ba). Physical Review B, 2015, 92, .	1.1	8
116	The electronic and mechanical properties of tetragonal YB <sub>2</sub> C as explored by first-principles methods. Journal of Alloys and Compounds, 2017, 726, 173-178.	2.8	8
117	First-principles study of hydrogen trapping behavior in face centered cubic metals (M=Ni, Cu and Al) with monovacancy. International Journal of Hydrogen Energy, 2020, 45, 25555-25566.	3.8	8
118	General principles to high-throughput constructing two-dimensional carbon allotropes*. Chinese Physics B, 2020, 29, 037306.	0.7	8
119	First-principles comprehensive study of electronic and mechanical properties of novel uranium hydrides at different pressures. Progress in Natural Science: Materials International, 2020, 30, 251-259.	1.8	8
120	BaPt <sub>4</sub> Ge <sub>12</sub> : A Skutterudite Based Entirely on a Ge Framework. Advanced Materials, 2008, 20, 1325-1328.	11.1	7
121	First-principles studies of hydrogen behavior interacting with oxygen-enriched nanostructured particles in the ODS steels. International Journal of Hydrogen Energy, 2014, 39, 18506-18519.	3.8	7
122	Topological Metal of NaBi with Ultralow Lattice Thermal Conductivity and Electron-phonon Superconductivity. Scientific Reports, 2015, 5, 8446.	1.6	7
123	One-Step Growth of Bilayer $2\text{H}\delta$ - $1\text{T}\delta^2$ MoTe <sub>2</sub> van der Waals Heterostructures with Interlayer-Coupled Resonant Phonon Vibration. ACS Nano, 2022, 16, 11268-11277.	7.3	7
124	Towards a Mechanism Underlying the Stability of the Tetragonal CuO Phase: Comparison with NiO and CoO by Hybrid Density Functional Calculation. Chinese Physics Letters, 2014, 31, 027402.	1.3	6
125	Structural, thermodynamic, and electronic properties of Laves-phase $\text{NbMn}_2$ from first principles, x-ray diffraction, and calorimetric experiments. Physical Review B, 2018, 97, .		
126	Comprehensive first-principles study of transition-metal substitution in the $\hat{1}^3$ phase of nickel-based superalloys. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2018, 61, 41-49.	0.7	6



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127	On-Demand Preparation of $\Gamma$ -Phase-Dominated Tungsten Films for Highly Qualified Thermal Reflectors. <i>Advanced Materials Interfaces</i> , 2019, 6, 1900031.	1.9	6
128	Comment on "Proposed model for calculating the standard formation enthalpy of binary transition-metal systems" [Appl. Phys. Lett. 81, 1219 (2002)]. <i>Applied Physics Letters</i> , 2005, 86, 216103.	1.5	5
129	Pressure Response of Novel Superconducting {Sr,Ba}Pt <sub>4</sub> Ge <sub>12</sub> . <i>Journal of the Physical Society of Japan</i> , 2008, 77, 350-352.	0.7	5
130	The system Ta-V-Si: Thermodynamic modeling. <i>Journal of Solid State Chemistry</i> , 2013, 199, 171-180.	1.4	5
131	Thermochemistry of some binary lead and transition metal compounds by high temperature direct synthesis calorimetry. <i>Journal of Alloys and Compounds</i> , 2015, 633, 183-187.	2.8	5
132	Publisher's Note: Ab initio study of ground-state properties of the Laves phase compounds TiCr <sub>2</sub> , ZrCr <sub>2</sub> , and HfCr <sub>2</sub> [Phys. Rev. B 71, 174101 (2005)]. <i>Physical Review B</i> , 2005, 71, .	1.1	4
133	Boosting the discovery of 3D topological materials: mixing chemistry with physics via a two-step computational screening strategy. <i>National Science Review</i> , 2018, 5, 316-318.	4.6	2
134	Localized Nb clusters in U-Nb liquid alloys: An ab initio molecular dynamics study. <i>Nuclear Materials and Energy</i> , 2021, 26, 100915.	0.6	2
135	Inducing mechanism and model of the critical oxygen content in homogenized steel. <i>Materials and Design</i> , 2021, 205, 109723.	3.3	2
136	Coupling of magnetic ordering and vibrational properties: a density functional theory study of magnetic and structural phase transitions. <i>Phase Transitions</i> , 2007, 80, 445-468.	0.6	1
137	Modeling Activity and Interaction Coefficients of Components of Multicomponent Alloy Melts: An Example of Iron Melt. <i>High Temperature Materials and Processes</i> , 2013, 32, 215-221.	0.6	0
138	An ab initio study on the dynamical properties of U-Nb alloy melt. <i>Chinese Physics B</i> , 0, , .	0.7	0
139	Implications for the Nb aggregation inherited from melt to $\Gamma^3$ phase of U-Nb alloy. <i>Journal of Alloys and Compounds</i> , 2021, 885, 160537.	2.8	0
140	Site preference, thermodynamic, and magnetic properties of the ternary Laves phase Ti(Fe <sub>1-x</sub> ) <sub>2</sub> Tj ETQq0 0 0 rgBT /Overlock 10 T MgZn <sub>2</sub> -type. <i>International Journal of Materials Research</i> , 2022, 97, 450-460.	0.1	0