Umut Aydemir

List of Publications by Year
in descending order

91	3,625	109264	138417
papers	citations	35 h-index	58 g-index

101	101	101	3330
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Key properties of inorganic thermoelectric materialsâ€"tables (version 1). JPhys Energy, 2022, 4, 022002.	2.3	51
2	Evaluating electrocatalytic activity of metal-substituted hafnium diboride (Hf1-TMB2; TM = Ni and Co) toward water splitting. Journal of Alloys and Compounds, 2022, 905, 164148.	2.8	5
3	Effect of Polymer Topology on Microstructure, Segmental Dynamics, and Ionic Conductivity in PEO/PMMA-Based Solid Polymer Electrolytes. ACS Applied Polymer Materials, 2022, 4, 179-190.	2.0	14
4	Enhanced thermoelectric performance in Mg_{3+x}Sb_{1.5}Bi_{0.49}Te_{0.01}via engineering microstructure through melt-centrifugation. Journal of Materials Chemistry A, 2021, 9, 1733-1742.	5.2	20
5	Metal doped layered MgB2 nanoparticles as novel electrocatalysts for water splitting. Scientific Reports, 2021, 11, 3337.	1.6	25
6	Phase-Transition-Enhanced Thermoelectric Transport in Rickardite Mineral Cu_{3â€“x}Te₂. Chemistry of Materials, 2021, 33, 1832-1841.	3.2	9
7	Fracture toughness of thermoelectric materials. Materials Science and Engineering Reports, 2021, 144, 100607.	14.8	39
8	Electrophoretic deposition and characterization of self-doped SrTiO3 thin films. Turkish Journal of Chemistry, 2021, 45, 323-332.	0.5	5
9	High thermoelectric performance enabled by convergence of nested conduction bands in Pb7Bi4Se13 with low thermal conductivity. Nature Communications, 2021, 12, 4793.	5.8	53
10	Metal-substituted zirconium diboride (Zr1-TMB2; TMÂ=ÂNi, Co, and Fe) as low-cost and high-performance bifunctional electrocatalyst for water splitting. Electrochimica Acta, 2021, 389, 138789.	2.6	22
11	Stress/pressure-stabilized cubic polymorph of Li₃Sb with improved thermoelectric performance. Journal of Materials Chemistry A, 2021, 9, 25024-25031.	5.2	4
12	Microwave-Assisted Auto-Combustion Synthesis of Binary/Ternary Co_xNi_{1â^'x}Ferrite for Electrochemical Hydrogen and Oxygen Evolution. ACS Omega, 2021, 6, 33024-33032.	1.6	11
13	Tailoring the Morphology of Cost-Effective Vanadium Diboride Through Cobalt Substitution for Highly Efficient Alkaline Water Oxidation. Inorganic Chemistry, 2021, 60, 19457-19466.	1.9	11
14	Intrinsic mechanical behavior of MgAgSb thermoelectric material: An ab initio study. Journal of Materiomics, 2020, 6, 24-32.	2.8	5
15	Crystal Structure and Atomic Vacancy Optimized Thermoelectric Properties in Gadolinium Selenides. Chemistry of Materials, 2020, 32, 10130-10139.	3.2	36
16	Vibrational dynamics of the type-I clathrates A8Sn44â–¡2 (Aâ€‰=â€‰Cs, Rb, K) from lattice-dynamics calculations, inelastic neutron scattering, and specific heat measurements. Journal of Applied Physics, 2020, 127, 145104.	1.1	5
17	Blue TiO2 nanotube arrays as semimetallic materials with enhanced photoelectrochemical activity towards water splitting. Turkish Journal of Chemistry, 2020, 44, 1642-1654.	0.5	1
18	Origins of ultralow thermal conductivity in 1-2-1-4 quaternary selenides. Journal of Materials Chemistry A, 2019, 7, 2589-2596.	5.2	28

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19	TiB2â€“SiC-based ceramics as alternative efficient micro heat exchangers. Ceramics International, 2019, 45, 19060-19067.	2.3	85
20	Ultrahigh figureâ€ofâ€merit of Cu₂Se incorporated with carbon coated boron nanoparticles. InformaÄnÃ-MateriÃ¡ly, 2019, 1, 108-115.	8.5	47
21	Mechanical properties in thermoelectric oxides: Ideal strength, deformation mechanism, and fracture toughness. Acta Materialia, 2018, 149, 341-349.	3.8	25
22	Observation of valence band crossing: the thermoelectric properties of CaZn₂Sb₂â€“CaMg₂Sb₂ solid solution. Journal of Materials Chemistry A, 2018, 6, 9437-9444.	5.2	70
23	Polycrystalline <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>ZrTe</mml:mi></mml:mrow><mml:mrow><mml:mn>5</mml:mn></m Parametrized as a Narrow-Band-Gap Semiconductor for Thermoelectric Performance. Physical Review Applied, 2018, 9, .	1.5	26
24	Quaternary Pavonites A_{1+x}Sn_{2â€“x}Bi_{5+x}S₁₀ (A⁺ = Li⁺, Na⁺): Site Occupancy Disorder Defines Electronic Structure. Inorganic Chemistry, 2018, 57, 2260-2268.	1.9	12
25	Localized Symmetry Breaking for Tuning Thermal Expansion in ScF₃ Nanoscale Frameworks. Journal of the American Chemical Society, 2018, 140, 4477-4480.	6.6	44
26	A valence balanced rule for discovery of 18-electron half-Heuslers with defects. Energy and Environmental Science, 2018, 11, 1480-1488.	15.6	105
27	Unique Role of Refractory Ta Alloying in Enhancing the Figure of Merit of NbFeSb Thermoelectric Materials. Advanced Energy Materials, 2018, 8, 1701313.	10.2	181
28	First-principles calculations and experimental studies of XYZ₂ thermoelectric compounds: detailed analysis of van der Waals interactions. Journal of Materials Chemistry A, 2018, 6, 19502-19519.	5.2	20
29	Meltâ€Centrifuged (Bi,Sb)₂Te₃: Engineering Microstructure toward High Thermoelectric Efficiency. Advanced Materials, 2018, 30, e1802016.	11.1	133
30	Giant enhancement of the figure-of-merit over a broad temperature range in nano-boron incorporated Cu₂Se. Journal of Materials Chemistry A, 2018, 6, 18409-18416.	5.2	49
31	Ideal Strength and Deformation Mechanism in High-Efficiency Thermoelectric SnSe. Chemistry of Materials, 2017, 29, 2382-2389.	3.2	50
32	A computational assessment of the electronic, thermoelectric, and defect properties of bournonite (CuPbSbS₃) and related substitutions. Physical Chemistry Chemical Physics, 2017, 19, 6743-6756.	1.3	47
33	Defect-Controlled Electronic Structure and Phase Stability in Thermoelectric Skutterudite CoSb₃. Chemistry of Materials, 2017, 29, 3999-4007.	3.2	17
34	High Temperature Electronic and Thermal Transport Properties of EuGa2â^'x In x Sb2. Journal of Electronic Materials, 2017, 46, 4798-4804.	1.0	4
35	Deformation mechanisms in high-efficiency thermoelectric layered Zintl compounds. Journal of Materials Chemistry A, 2017, 5, 9050-9059.	5.2	31
36	Achieving zT > 1 in Inexpensive Zintl Phase Ca₉Zn₄₊_xSb₉ by Phase Boundary Mapping. Advanced Functional Materials, 2017, 27, 1606361.	7.8	129

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37	Superstrengthening <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Bi</mml:mi></mml:mrow><mml:mn>2</mml:mn></mml:msub><mml through Nanotwinning. Physical Review Letters, 2017, 119, 085501.	2.9	58
38	Grain boundary engineering with nano-scale InSb producing high performance In Ce Co4Sb12+ skutterudite thermoelectrics. Journal of Materiomics, 2017, 3, 273-279.	2.8	33
39	Isotropic Zero Thermal Expansion and Local Vibrational Dynamics in (Sc,Fe)F₃. Inorganic Chemistry, 2017, 56, 10840-10843.	1.9	16
40	Enhanced stability and thermoelectric figure-of-merit in copper selenide by lithium doping. Materials Today Physics, 2017, 1, 7-13.	2.9	93
41	SnO as a potential oxide thermoelectric candidate. Journal of Materials Chemistry C, 2017, 5, 8854-8861.	2.7	72
42	Selfâ€Tuning nâ€Type Bi₂(Te,Se)₃/SiC Thermoelectric Nanocomposites to Realize High Performances up to 300 Â°C. Advanced Science, 2017, 4, 1700259.	5.6	72
43	Metal phosphides as potential thermoelectric materials. Journal of Materials Chemistry C, 2017, 5, 12441-12456.	2.7	53
44	Micro- and Macromechanical Properties of Thermoelectric Lead Chalcogenides. ACS Applied Materials & Interfaces, 2017, 9, 40488-40496.	4.0	45
45	Mechanical properties of thermoelectric lanthanum telluride from quantum mechanics. Journal Physics D: Applied Physics, 2017, 50, 274002.	1.3	12
46	An ab initio electronic transport database for inorganic materials. Scientific Data, 2017, 4, 170085.	2.4	146
47	Apparent critical phenomena in the superionic phase transition of Cu_{2-x}Se. New Journal of Physics, 2016, 18, 013024.	1.2	48
48	Understanding thermoelectric properties from high-throughput calculations: trends, insights, and comparisons with experiment. Journal of Materials Chemistry C, 2016, 4, 4414-4426.	2.7	193
49	Enhanced ideal strength of thermoelectric half-Heusler TiNiSn by sub-structure engineering. Journal of Materials Chemistry A, 2016, 4, 14625-14636.	5.2	48
50	Structure and Failure Mechanism of the Thermoelectric CoSb₃/TiCoSb Interface. ACS Applied Materials & Interfaces, 2016, 8, 31968-31977.	4.0	13
51	Engineering half-Heusler thermoelectric materials using Zintl chemistry. Nature Reviews Materials, 2016, 1, .	23.3	340
52	A novel europium (III) nitridoborate Eu3[B3N6]: Synthesis, crystal structure, magnetic properties, and Raman spectra. Journal of Solid State Chemistry, 2016, 239, 75-83.	1.4	4
53	p-Type Co Interstitial Defects in Thermoelectric Skutterudite CoSb₃ Due to the Breakage of Sb₄-Rings. Chemistry of Materials, 2016, 28, 2172-2179.	3.2	28
54	YCuTe₂: a member of a new class of thermoelectric materials with CuTe₄-based layered structure. Journal of Materials Chemistry A, 2016, 4, 2461-2472.	5.2	52

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55	Enhanced thermoelectric properties of the Zintl phase BaGa₂Sb₂via doping with Na or K. Journal of Materials Chemistry A, 2016, 4, 1867-1875.	5.2	26
56	Electronic structure and thermoelectric properties of pnictogen-substituted ASn1.5Te1.5 (Aâ€‰=â€‰Co, Rh, Ir) skutterudites. Journal of Applied Physics, 2015, 118, .	1.1	13
57	Ca3[BN2]I3: The First Halide-Rich Alkaline Earth NitridoÂborate with Isolated [BN2]3-Units. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2015, 641, 2014-2019.	0.6	4
58	Inelastic neutron scattering study of the lattice dynamics in the clathrate compound BaGe₅. Journal of Physics Condensed Matter, 2015, 27, 485401.	0.7	6
59	Thermoelectric properties of the Zintl phases Yb₅M₂Sb₆(M = Al,) Tj ETQq1 1 0.784314 rgBT /Ov	1.6	38
60	Thermoelectric Enhancement in BaGa₂Sb₂ by Zn Doping. Chemistry of Materials, 2015, 27, 1622-1630.	3.2	53
61	Electronic band structure and low-temperature transport properties of the type-I clathrate Ba₈Ni_xGe_{46â^'xâ^'y}â–¡_y. Dalton Transactions, 2015, 44, 7524-7537.	1.6	10
62	Enhanced thermoelectric properties of Sr5In2Sb6via Zn-doping. Journal of Materials Chemistry A, 2015, 3, 10289-10295.	5.2	21
63	Themed issue on the chemistry of thermoelectric materials. Journal of Materials Chemistry C, 2015, 3, 10332-10335.	2.7	4
64	High temperature thermoelectric properties of Zn-doped Eu₅In₂Sb₆. Journal of Materials Chemistry C, 2015, 3, 10518-10524.	2.7	27
65	Computational and experimental investigation of TmAgTe₂and XYZ₂compounds, a new group of thermoelectric materials identified by first-principles high-throughput screening. Journal of Materials Chemistry C, 2015, 3, 10554-10565.	2.7	99
66	Thermoelectric properties and electronic structure of the Zintl phase Sr₅In₂Sb₆and the Ca₅â^'xSr_xIn₂Sb₆solid solution. Journal of Physics Condensed Matter, 2015, 27, 015801.	0.7	9
67	High temperature transport properties of BaZn2Sn2. Journal of Alloys and Compounds, 2015, 622, 402-407.	2.8	4
68	High temperature thermoelectric properties of the type-I clathrate Ba₈Ni_xGe_{46â^'xâ^'y}â–¡_y. Journal of Physics Condensed Matter, 2014, 26, 485801.	0.7	10
69	BaGe6and BaGe6-x: Incommensurately Ordered Vacancies as Electron Traps. Inorganic Chemistry, 2014, 53, 12699-12705.	1.9	6
70	Thermoelectric properties of the Ca₅Al_{2â^'x}In_xSb₆solid solution. Dalton Transactions, 2014, 43, 15872-15878.	1.6	28
71	Synthesis, crystal structure and magnetic properties of Li0.44Eu3[B3N6]. Journal of Solid State Chemistry, 2014, 210, 96-101.	1.4	2
72	High temperature thermoelectric properties of the type-I clathrate Ba8AuxSi46â^'x. Journal of Applied Physics, 2012, 111, .	1.1	28

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73	Synthesis, Crystal Structure, and Physical Properties of the Type-I Clathrate Ba_{8â^'Î´}Ni_xâ–¡_ySi_{46â€“xâ€“y}. Inorganic Chemistry, 2012, 51, 4730-4741.	1.9	29
74	Low-temperature thermoelectric, galvanomagnetic, and thermodynamic properties of the type-I clathrate Ba<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Au<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Ge<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Ni<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Si<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Sn<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Zn<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math> clathrates	1.1	44
75	Multiband conduction in the type-I clathrate Ba<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Ge<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow><mml:mrow><mml:msub><mml:mrow /><mml:mn>43</mml:mn></mml:msub><mml:msub><mml:mo>â–¡</mml:mo><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:mrow></mml:msub></mml:math>	1.1	23
76	Syntheses, crystal structures, magnetic properties and vibrational spectra of nitridoborate-halide compounds Sr₂[BN₂]Br and Eu₂[BN₂]X(X= Br, I) with isolated [BN₂]^{3â€“}units. Zeitschrift FÃ¼r Kristallographie, 2011, 226, 633-639.	1.1	9
77	Vibrational Spectra and Quantum Chemical Calculations of the Pure and Mixed Cluster Anions [SixGe4-x]4- and [GexSn4-x]4- (x = 0-4) in Compounds with Potassium and Cesium. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2011, 637, 907-914.	0.6	5
78	Transport properties of the clathrate BaGe5. Journal of Applied Physics, 2011, 110, 043715.	1.1	12
79	Multiband conduction in the type-I clathrate Ba<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>8</mml:mn></mml:msub></mml:math>Ge<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow><mml:mrow><mml:msub><mml:mrow /><mml:mn>43</mml:mn></mml:msub><mml:msub><mml:mo>â–¡</mml:mo><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:mrow></mml:msub></mml:math>	1.1	9
80	Thermoelectric Properties of the ClathrateÂI Ba8Ge43â–¡3. Journal of Electronic Materials, 2010, 39, 2039-2042.	1.0	14
81	Physical Properties of Single-Crystalline Ba8Ni3.5Ge42.1â–¡0.4. Journal of Electronic Materials, 2010, 39, 1386-1389.	1.0	8
82	BaGe₅: A New Type of Intermetallic Clathrate. Journal of the American Chemical Society, 2010, 132, 10984-10985.	6.6	39
83	Î±- and Î²-Na2[BH4][NH2]: Two modifications of a complex hydride in the system NaNH2â€“NaBH4; syntheses, crystal structures, thermal analyses, mass and vibrational spectra. Journal of Alloys and Compounds, 2010, 491, 98-105.	2.8	55
84	Atomic ordering and thermoelectric properties of the n-type clathrate Ba8Ni3.5Ge42.1â–¡0.4. Dalton Transactions, 2010, 39, 1071-1077.	1.6	74
85	Crystal structure and transport properties of Ba8Ge43â–¡3. Dalton Transactions, 2010, 39, 1078-1088.	1.6	77
86	The Metallic Zintl Phase Ba₃Si₄ â€“ Synthesis, Crystal Structure, Chemical Bonding, and Physical Properties. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2008, 634, 1651-1661.	0.6	44
87	TEM and SEM Investigation on Oxidised Ge-based Clathrates. Microscopy and Microanalysis, 2008, 14, 1142-1143.	0.2	0
88	Crystal structure of tetrapotassium diarsenidozincate, K4ZnAs2. Zeitschrift Fur Kristallographie - New Crystal Structures, 2007, 222, 163-164.	0.1	6
89	Synthesis of the intermetallic clathrate Na₂Ba₆Si₄₆ by oxidation of Na₂BaSi₄ with HCl. Science and Technology of Advanced Materials, 2007, 8, 410-415.	2.8	24
90	Cs4Ge9Â·en: A Novel Compound with [Ge9]4â^' Clusters â€“ Synthesis, Crystal Structure and Vibrational Spectra. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2007, 633, 1575-1580.	0.6	20

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91	Vibrational Spectra of Cluster Anions. 2. Vibrational Spectra of Compounds with the Cluster Anions [E4]4â^': M4E4 (M = K, Rb, Cs; E = Ge, Sn) and Î²-Na4Sn4. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2006, 632, 1281-1286.	0.6	4