Cemal Basaran

List of Publications by Year
in descending order

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159	3,818	35	53
papers	citations	h-index	g-index
		109321	168389

166	166	166	1853
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Predicting high cycle fatigue life with unified mechanics theory. Mechanics of Materials, 2022, 164, 104116.	3.2	16
2	Modeling ultrasonic vibration fatigue with unified mechanics theory. International Journal of Solids and Structures, 2022, 236-237, 111313.	2.7	15
3	Unified mechanics theory based flow stress model for the rate-dependent behavior of bcc metals. Materials Today Communications, 2022, 31, 103707.	1.9	1
4	Introduction to Unified Mechanics Theory with Applications. , 2021, , .		12
5	A semi-infinite edge dislocation model for the proportionality limit stress of metals under high strain rate. Computational Mechanics, 2021, 68, 545-565.	4.0	1
6	Unified Micromechanics of Particulate Composites. , 2021, , 277-342.		0
7	Unified Mechanics of Metals under High Electrical Current Density: Electromigration and Thermomigration. , 2021, , 395-425.		0
8	Dynamic Equilibrium Equations in Unified Mechanics Theory. Applied Mechanics, 2021, 2, 63-80.	1.5	7
9	A unified mechanics theory-based model for temperature and strain rate dependent proportionality limit stress of mild steel. Mechanics of Materials, 2021, 155, 103762.	3.2	10
10	A Review of Damage, Void Evolution, and Fatigue Life Prediction Models. Metals, 2021, 11, 609.	2.3	23
11	Unified Mechanics Theory. , 2021, , 115-202.		0
12	Influence of defects on dissipative transport in graphene nanoribbons tunnel field-effect transistor. Nanotechnology, 2020, 31, 045703.	2.6	4
13	Low Cycle Fatigue Life Prediction Using Unified Mechanics Theory in Ti-6Al-4V Alloys. Entropy, 2020, 22, 24.	2.2	21
14	Entropy Based Fatigue, Fracture, Failure Prediction and Structural Health Monitoring. Entropy, 2020, 22, 1178.	2.2	8
15	High current density electron wind forces in metallic graphene nanoribbons. Nanotechnology, 2020, 31, 355203.	2.6	2
16	Impact of electrostatic doping level on the dissipative transport in graphene nanoribbons tunnel field-effect transistors. Carbon, 2019, 153, 120-126.	10.3	11
17	Anisotropy of Graphene Nanoflake Diamond Interface Frictional Properties. Materials, 2019, 12, 1425.	2.9	11
18	Electrostatic Doping-Based All GNR Tunnel FET: An Energy-Efficient Design for Power Electronics. IEEE Transactions on Electron Devices, 2019, 66, 1971-1978.	3.0	14

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19	Comparison of fracture behavior of defective armchair and zigzag graphene nanoribbons. International Journal of Damage Mechanics, 2019, 28, 325-345.	4.2	26
20	Shear Strength of Square Graphene Nanoribbons beyond Wrinkling. Journal of Electronic Materials, 2018, 47, 3891-3896.	2.2	7
21	Electron-phonon scattering and Joule heating in copper at extreme cold temperatures. Computational Materials Science, 2018, 149, 397-408.	3.0	3
22	Mechanical and electronic properties of graphene nanomesh heterojunctions. Computational Materials Science, 2018, 153, 64-72.	3.0	19
23	Influence of vacancy defects on the damage mechanics of graphene nanoribbons. International Journal of Damage Mechanics, 2017, 26, 29-49.	4.2	27
24	Aspect ratio effect on shear modulus and ultimate shear strength of graphene nanoribbons. Diamond and Related Materials, 2017, 74, 9-15.	3.9	11
25	Unraveling mechanics of armchair and zigzag graphene nanoribbons. International Journal of Damage Mechanics, 2017, 26, 447-462.	4.2	20
26	Impact of geometry on transport properties of armchair graphene nanoribbon heterojunction. Carbon, 2017, 124, 422-428.	10.3	25
27	The effects of vacancy defect on the fracture behaviors of zigzag graphene nanoribbons. International Journal of Damage Mechanics, 2017, 26, 608-630.	4.2	18
28	The effect of Stone-Wales defects on the mechanical behavior of graphene nano-ribbons. Computational Materials Science, 2016, 124, 142-150.	3.0	44
29	Strained phononâ€“phonon scattering in carbon nanotubes. Computational Materials Science, 2016, 112, 87-91.	3.0	11
30	Unification of newtonian mechanics and thermodynamics. MOJ Civil Engineering, 2016, 1, .	0.3	0
31	Experimental verification of thermodynamic fatigue life prediction model using entropy as damage metric. Materials Science and Technology, 2015, 31, 1627-1632.	1.6	41
32	Mechanical Properties of Hydrogen Edgeâ€“Passivated Chiral Graphene Nanoribbons. Journal of Nanomechanics & Micromechanics, 2015, 5, .	1.4	22
33	Temperature dependence of Joule heating in Zigzag Graphene Nanoribbon. Carbon, 2015, 89, 169-175.	10.3	28
34	Phononâ€“phonon scattering rates in single walled carbon nanotubes. Computational Materials Science, 2015, 103, 151-156.	3.0	9
35	Thermodynamics Theory for Damage Evolution in Solids. , 2015, , 721-762.		4
36	Damage Mechanics Unified Constitutive Modeling for Polymers. , 2015, , 681-720.		0

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37	An accelerated algorithm for full band electronâ€“phonon scattering rate computation. Computer Physics Communications, 2014, 185, 3392-3397.	7.5	10
38	Parity conservation in electron-phonon scattering in zigzag graphene nanoribbon. Applied Physics Letters, 2014, 105, 113112.	3.3	16
39	Phonon dispersion and quantization tuning of strained carbon nanotubes for flexible electronics. Journal of Applied Physics, 2014, 115, 243702.	2.5	9
40	The size effect in mechanical properties of finite-sized graphene nanoribbon. Computational Materials Science, 2014, 81, 269-274.	3.0	73
41	Damage mechanics of electromigration and thermomigration in lead-free solder alloys under alternating current: An experimental study. International Journal of Damage Mechanics, 2014, 23, 203-221.	4.2	24
42	Thermodynamic Theory for Damage Evolution in Solids. , 2014, , 1-39.		2
43	Damage Mechanics Unified Constitutive Modeling for Polymers. , 2014, , 1-37.		0
44	Effect of Ni solute on grain boundary diffusivity and structure of Î²Sn. Computational Materials Science, 2014, 92, 1-7.	3.0	12
45	A multiscale modeling technique for bridging molecular dynamics with finite element method. Journal of Computational Physics, 2013, 253, 64-85.	3.8	18
46	Electromigration in lead-free solder joints under high-frequency pulse current: An experimental study. International Journal of Damage Mechanics, 2013, 22, 1127-1143.	4.2	7
47	Electromigration damage mechanics of lead-free solder joints under pulsed DC: A computational model. Computational Materials Science, 2013, 71, 76-88.	3.0	27
48	Electric pulse induced impedance and material degradation in IC chip packaging. Electronic Materials Letters, 2013, 9, 565-568.	2.2	8
49	A cyclic two-surface thermoplastic damage model with application to metallic plate dampers. Engineering Structures, 2013, 52, 608-620.	5.3	13
50	Influence of hot phonons on wind forces in metallic single walled carbon nanotubes. Carbon, 2013, 57, 59-64.	10.3	8
51	Molecular dynamics of viscoplasticity in Î²-tin lattice and grain boundary. Computational Materials Science, 2013, 68, 290-296.	3.0	8
52	Influence of filler content and interphase properties on large deformation micromechanics of particle filled acrylics. Mechanics of Materials, 2013, 57, 134-146.	3.2	23
53	Atomic-Level Shear Stress-Strain Behavior of Î²-Sn. Journal of Nanomechanics & Micromechanics, 2013, 3, .	1.4	1
54	Predicting elastic modulus of particle filled composites. International Journal of Materials and Structural Integrity, 2013, 7, 100.	0.1	1

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55	Computational damage mechanics of electromigration and thermomigration. Journal of Applied Physics, 2013, 114, .	2.5	61
56	Electromigration analysis of solder joints under ac load: A mean time to failure model. Journal of Applied Physics, 2012, 111, .	2.5	38
57	Hot phonons contribution to Joule heating in single-walled carbon nanotubes. Journal of Applied Physics, 2012, 112, 103527.	2.5	12
58	Reduced impedance and superconductivity of SnAgCu solder alloy at high frequency. Electronic Materials Letters, 2012, 8, 503-505.	2.2	10
59	Solder joint grain boundary structure and diffusivity via molecular dynamics simulations. , 2012, , .		0
60	Damage of SAC405 solder joint under PDC. , 2012, , .		1
61	A velocity averaging method for bridging molecular dynamics with finite element analysis. , 2012, , .		0
62	Mean time to failure of SnAgCuNi solder joints under DC. , 2012, , .		1
63	Modeling Joule heating in carbon nanotubes with Monte Carlo simulations. , 2012, , .		0
64	Far-field modeling of MoirÃ© interferometry using scalar diffraction theory. Optics and Lasers in Engineering, 2012, 50, 1168-1176.	3.8	9
65	Near field modeling of the MoirÃ© interferometer for nanoscale strain measurement. Optics and Lasers in Engineering, 2012, 50, 976-984.	3.8	1
66	Solute Effects on Î²-Sn Grain Boundary Energy and Shear Stress. Journal of Nanomechanics & Micromechanics, 2011, 1, 41-50.	1.4	9
67	Statistical phase-shifting step estimation algorithm based on the continuous wavelet transform for high-resolution interferometry metrology. Applied Optics, 2011, 50, 586.	2.1	16
68	The prediction of the effective charge number in single-walled carbon nanotubes using Monte Carlo simulation. Carbon, 2011, 49, 425-434.	10.3	10
69	Effect of Cu and Ag solute segregation on <i>Î²</i>Sn grain boundary diffusivity. Journal of Applied Physics, 2011, 110, 013528.	2.5	18
70	A Creep Model for Solder Alloys. Journal of Electronic Packaging, Transactions of the ASME, 2011, 133, .	1.8	29
71	The Unravelling of Open-Ended Single Walled Carbon Nanotubes Using Molecular Dynamics Simulations. Journal of Electronic Packaging, Transactions of the ASME, 2011, 133, .	1.8	10
72	Introduction for JEP Special Issue on Carbon Nanotubes. Journal of Electronic Packaging, Transactions of the ASME, 2011, 133, .	1.8	2

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73	Measuring Joule heating and strain induced by electrical current with MoirÃ© interferometry. Journal of Applied Physics, 2011, 109, 074908.	2.5	4
74	Special Issue on Nanomechanics of Solids and Interfaces with Molecular Dynamic Simulations. Journal of Nanomechanics & Micromechanics, 2011, 1, 2-2.	1.4	0
75	A Viscoplasticity Model for Solder Alloys. , 2010, , .		3
76	Semi-classical transport for predicting joule heating in carbon nanotubes. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 2475-2479.	2.1	15
77	Atomistic modeling of Î²-Sn surface energies and adatom diffusivity. Applied Surface Science, 2010, 256, 4402-4407.	6.1	44
78	A quantum mechanical formulation of electron transport induced wind forces in metallic single-walled carbon nanotubes. Carbon, 2010, 48, 47-53.	10.3	7
79	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Î²</mml:mi><mml:mtext>-Sn</mml:mtext></mml:mrow></mml:math>grain boundary structure and self-diffusivity via molecular dynamics simulations. Physical Review B, 2010, 81, .	3.2	35
80	Statistical phase shifting step estimation based on continuous wavelet transform for high resolution interferometry metrology. , 2010, , .		0
81	Influence of Thermomigration on Lead-Free Solder Joint Mechanical Properties. Journal of Electronic Packaging, Transactions of the ASME, 2009, 131, .	1.8	33
82	Damage Mechanics of Low Temperature Electromigration and Thermomigration. IEEE Transactions on Advanced Packaging, 2009, 32, 478-485.	1.6	17
83	Lattice Strain Due to an Atomic Vacancy. International Journal of Molecular Sciences, 2009, 10, 2798-2808.	4.1	40
84	Electromigration time to failure of SnAgCuNi solder joints. Journal of Applied Physics, 2009, 106, .	2.5	20
85	Micro-deformation mechanisms in thermoformed alumina trihydrate reinforced poly(methyl) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf Microstructure and Processing, 2009, 523, 160-172.	5.6	17
86	A computational damage mechanics model for thermomigration. Mechanics of Materials, 2009, 41, 271-278.	3.2	46
87	Joule heating in single-walled carbon nanotubes. Journal of Applied Physics, 2009, 106, .	2.5	62
88	A framework for stress computation in single-walled carbon nanotubes under uniaxial tension. Computational Materials Science, 2009, 46, 1135-1143.	3.0	26
89	Effective diffusivity of lead free solder alloys. Computational Materials Science, 2009, 47, 71-78.	3.0	20
90	Low temperature electromigration and thermomigration in lead-free solder joints. Mechanics of Materials, 2009, 41, 1223-1241.	3.2	17

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91	Thermomigration Versus Electromigration in Microelectronics Solder Joints. IEEE Transactions on Advanced Packaging, 2009, 32, 627-635.	1.6	30
92	Computational implementation of Cosserat continuum. International Journal of Materials and Product Technology, 2009, 34, 3.	0.2	6
93	Damage Mechanics of Carbon Nano Tubes Under Uniaxial Tension. , 2009, , .		0
94	Electromigration Damage Mechanics of Interconnects. , 2009, , .		0
95	Damage mechanics of electromigration induced failure. Mechanics of Materials, 2008, 40, 66-79.	3.2	73
96	Automatic Full Strain Field MoirÃ© Interferometry Measurement with Nano-scale Resolution. Experimental Mechanics, 2008, 48, 665-673.	2.0	19
97	Thermomigration induced degradation in solder alloys. Journal of Applied Physics, 2008, 103, .	2.5	38
98	Influence of Interfacial Bond Strength on Fatigue Life and Thermo-Mechanical Behavior of a Particulate Composite: An Experimental Study. International Journal of Damage Mechanics, 2008, 17, 123-147.	4.2	18
99	Time Dependent Behavior of a Particle Filled Composite PMMA/ATH at Elevated Temperatures. Journal of Composite Materials, 2008, 42, 2003-2025.	2.4	15
100	Simulating Damage Mechanics of Electromigration and Thermomigration. Simulation, 2008, 84, 391-401.	1.8	17
101	Low temperature electromigration and thermomigration in lead-free solder joints. , 2008, , .		0
102	Thermomigration in lead-free solder joints. International Journal of Materials and Structural Integrity, 2008, 2, 11.	0.1	16
103	Damage Mechanics of Solder Joints under High Current Density. Key Engineering Materials, 2007, 345-346, 1403-1410.	0.4	0
104	Damage mechanics of electromigration in microelectronics copper interconnects. International Journal of Materials and Structural Integrity, 2007, 1, 16.	0.1	30
105	Determination of Strain Gradient Plasticity Length Scale for Microelectronics Solder Alloys. Journal of Electronic Packaging, Transactions of the ASME, 2007, 129, 120-128.	1.8	12
106	A thermodynamics based damage mechanics model for particulate composites. International Journal of Solids and Structures, 2007, 44, 1099-1114.	2.7	59
107	Electromigration induced strain field simulations for nanoelectronics lead-free solder joints. International Journal of Solids and Structures, 2007, 44, 4909-4924.	2.7	34
108	Analysis of Multilayered Microelectronic Packaging Under Thermal Gradient Loading. IEEE Transactions on Components and Packaging Technologies, 2006, 29, 850-855.	1.3	6

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109	Nanoindentation of Pb/Sn solder alloys; experimental and finite element simulation results. International Journal of Solids and Structures, 2006, 43, 1505-1527.	2.7	34
110	Damage mechanics constitutive model for Pb/Sn solder joints incorporating nonlinear kinematic hardening and rate dependent effects using a return mapping integration algorithm. Mechanics of Materials, 2006, 38, 585-598.	3.2	54
111	Experimental Damage Mechanics of Micro/Power Electronics Solder Joints under Electric Current Stresses. International Journal of Damage Mechanics, 2006, 15, 41-67.	4.2	26
112	Failure Mechanisms in PMMA/ATH Acrylic Casting Dispersion. Journal of the Mechanical Behavior of Materials, 2006, 17, 79-96.	1.8	12
113	Damage Mechanics Modeling of Concurrent Thermal and Vibration Loading on Electronics Packaging. Multidiscipline Modeling in Materials and Structures, 2006, 2, 309-326.	1.3	16
114	Influence of Interfacial Compliance on Thermomechanical Stresses in Multilayered Microelectronic Packaging. IEEE Transactions on Advanced Packaging, 2006, 29, 666-673.	1.6	11
115	Length Scale in Solder Joints Materials. , 2006, , .		0
116	Thermomigration Induced Strain Field Simulation for Microelectronic Lead Free Solder Joints. , 2006, , .		0
117	Experimental Study of Thermomigration in Lead-Free Nanoelectronics Solder Joints. , 2006, , .		1
118	A thermodynamics based damage mechanics constitutive model for low cycle fatigue analysis of microelectronics solder joints incorporating size effects. International Journal of Solids and Structures, 2005, 42, 3744-3772.	2.7	56
119	A micromechanical model for effective elastic properties of particulate composites with imperfect interfacial bonds. International Journal of Solids and Structures, 2005, 42, 4179-4191.	2.7	84
120	An Analytical Model for Thermal Stress Analysis of Multi-layered Microelectronic Packaging. , 2005, , .		3
121	Electromigration induced stress analysis using fully coupled mechanicalâ€"diffusion equations with nonlinear material properties. Computational Materials Science, 2005, 34, 82-98.	3.0	54
122	An Irreversible Thermodynamics Theory for Damage Mechanics of Solids. International Journal of Damage Mechanics, 2004, 13, 205-223.	4.2	191
123	Experimental verification of improvement of phase shifting moireÂ´ interferometry using wavelet-based image processing. Optical Engineering, 2004, 43, 1206.	1.0	15
124	Mechanical Implications of High Current Densities in Flip-chip Solder Joints. International Journal of Damage Mechanics, 2004, 13, 335-345.	4.2	14
125	An analytical model for thermal stress analysis of multi-layered microelectronic packaging. Mechanics of Materials, 2004, 36, 369-385.	3.2	57
126	Experimental damage mechanics of microelectronic solder joints under fatigue loading. Mechanics of Materials, 2004, 36, 1111-1121.	3.2	38

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127	Pb phase coarsening in eutectic Pb/Sn flip chip solder joints under electric current stressing. International Journal of Solids and Structures, 2004, 41, 2743-2755.	2.7	38
128	Deformation of solder joint under current stressing and numerical simulationâ€"â€"I. International Journal of Solids and Structures, 2004, 41, 4939-4958.	2.7	35
129	Deformation of solder joint under current stressing and numerical simulationâ€"â€"II. International Journal of Solids and Structures, 2004, 41, 4959-4973.	2.7	19
130	MoirÃ© interferogram phase extraction: a ridge detection algorithm for continuous wavelet transforms. Applied Optics, 2004, 43, 850.	2.1	100
131	A thermodynamic model for electrical current induced damage. International Journal of Solids and Structures, 2003, 40, 7315-7327.	2.7	102
132	Mechanical degradation of microelectronics solder joints under current stressing. International Journal of Solids and Structures, 2003, 40, 7269-7284.	2.7	56
133	Analysis of multi-layered microelectronic packaging under uniformly distributed loading. International Journal of Solids and Structures, 2003, 40, 3331-3345.	2.7	4
134	Damage mechanics of microelectronics solder joints under high current densities. International Journal of Solids and Structures, 2003, 40, 4021-4032.	2.7	53
135	Measurement of high electrical current density effects in solder joints. Microelectronics Reliability, 2003, 43, 2021-2029.	1.7	32
136	Sensitivity improvement in phase-shifted moireÂ´ interferometry using 1-D continuous wavelet transform image processing. Optical Engineering, 2003, 42, 2646.	1.0	22
137	Thermomigration in Pbâ€"Sn solder joints under joule heating during electric current stressing. Applied Physics Letters, 2003, 82, 1045-1047.	3.3	229
138	Thermomechanical Stress Analysis of Multi-Layered Electronic Packaging. Journal of Electronic Packaging, Transactions of the ASME, 2003, 125, 134-138.	1.8	18
139	A Damage Mechanics-Based Fatigue Life Prediction Model for Solder Joints. Journal of Electronic Packaging, Transactions of the ASME, 2003, 125, 120-125.	1.8	63
140	Coarsening in BGA Solder Balls: Modeling and Experimental Evaluation. Journal of Electronic Packaging, Transactions of the ASME, 2003, 125, 426-430.	1.8	11
141	Thermomechanical Analysis of Solder Joints Under Thermal and Vibrational Loading. Journal of Electronic Packaging, Transactions of the ASME, 2002, 124, 60-66.	1.8	40
142	Elastic Modulus of Pb/Sn Solder Joints in Microelectronics. , 2002, , 141.		0
143	Implementation of a Thermodynamic Framework for Damage Mechanics of Solder Interconnects in Microelectronics Packaging. International Journal of Damage Mechanics, 2002, 11, 87-108.	4.2	51
144	Irreversible Thermodynamics for Damage Mechanics of Solid Materials. , 2002, , 193.		0

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145	Implementation of a Thermodynamic Framework for Damage Mechanics of Solder Interconnects in Microelectronic Packaging. , 2002, , 61.		5
146	Measuring intrinsic elastic modulus of Pb/Sn solder alloys. Mechanics of Materials, 2002, 34, 349-362.	3.2	58
147	Failure modes and FEM analysis of power electronic packaging. Finite Elements in Analysis and Design, 2002, 38, 601-612.	3.2	138
148	Mechanical Implications of High Current Densities in Flip Chip Solder Joints. , 2002, , .		2
149	Influence of Microstructure Coarsening on Thermomechanical Fatigue Behavior of Pb/Sn Eutectic Solder Joints. International Journal of Damage Mechanics, 2001, 10, 235-255.	4.2	32
150	Mesh Sensitivity and FEA for Multi-Layered Electronic Packaging. Journal of Electronic Packaging, Transactions of the ASME, 2001, 123, 218-224.	1.8	27
151	SELECTING A TEMPERATURE TIME HISTORY FOR PREDICTING FATIGUE LIFE OF MICROELECTRONICS SOLDER JOINTS. Journal of Thermal Stresses, 2001, 24, 1063-1083.	2.0	12
152	Experimental Damage Mechanics of Microelectronics Solder Joints under Concurrent Vibration and Thermal Loading. International Journal of Damage Mechanics, 2001, 10, 153-170.	4.2	40
153	Using finite element analysis for simulation of reliability tests on solder joints in microelectronic packaging. Computers and Structures, 2000, 74, 215-231.	4.4	30
154	Thermomechanical behavior of micron scale solder joints under dynamic loads. Mechanics of Materials, 2000, 32, 161-173.	3.2	76
155	Unified Disturbed State Concept For Metals and Alloys. Journal of the Mechanical Behavior of Materials, 1999, 10, 279-310.	1.8	2
156	Closed form vs. finite element analysis of laminated stacks. Finite Elements in Analysis and Design, 1999, 32, 163-179.	3.2	10
157	Mechanics of Pb40/Sn60 near-eutectic solder alloys subjected to vibrations. Applied Mathematical Modelling, 1998, 22, 601-627.	4.2	53
158	Numerical algorithms and mesh dependence in the disturbed state concept. International Journal for Numerical Methods in Engineering, 1997, 40, 3059-3083.	2.8	38
159	Numerical algorithms and mesh dependence in the disturbed state concept. International Journal for Numerical Methods in Engineering, 1997, 40, 3059-3083.	2.8	6