Tarasankar DebRoy

List of Publications by Year
in descending order

244	23,385	10956 71	8599 146
papers	citations	h-index	g-index

253	253	253	9425
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Additive manufacturing of metallic components â€“ Process, structure and properties. Progress in Materials Science, 2018, 92, 112-224.	16.0	4,751
2	Recent advances in friction-stir welding â€“ Process, weldment structure and properties. Progress in Materials Science, 2008, 53, 980-1023.	16.0	1,729
3	Review: Friction stir welding tools. Science and Technology of Welding and Joining, 2011, 16, 325-342.	1.5	623
4	An improved prediction of residual stresses and distortion in additive manufacturing. Computational Materials Science, 2017, 126, 360-372.	1.4	543
5	Three-dimensional heat and material flow during friction stir welding of mild steel. Acta Materialia, 2007, 55, 883-895.	3.8	528
6	Surface tension of binary metalâ€”surface active solute systems under conditions relevant to welding metallurgy. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1988, 19, 483-491.	0.5	461
7	Physical processes in fusion welding. Reviews of Modern Physics, 1995, 67, 85-112.	16.4	443
8	Evolution of solidification texture during additive manufacturing. Scientific Reports, 2015, 5, 16446.	1.6	337
9	Scientific, technological and economic issues in metal printing and their solutions. Nature Materials, 2019, 18, 1026-1032.	13.3	336
10	Heat transfer and fluid flow during keyhole mode laser welding of tantalum, Tiâ€“6Alâ€“4V, 304L stainless steel and vanadium. Journal Physics D: Applied Physics, 2007, 40, 5753-5766.	1.3	333
11	Printability of alloys for additive manufacturing. Scientific Reports, 2016, 6, 19717.	1.6	319
12	Numerical simulation of three-dimensional heat transfer and plastic flow during friction stir welding. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2006, 37, 1247-1259.	1.1	288
13	Current issues and problems in laser welding of automotive aluminium alloys. International Materials Reviews, 1999, 44, 238-266.	9.4	277
14	Building blocks for a digital twin of additive manufacturing. Acta Materialia, 2017, 135, 390-399.	3.8	258
15	Heat transfer and fluid flow during laser spot welding of 304 stainless steel. Journal Physics D: Applied Physics, 2003, 36, 1388-1398.	1.3	253
16	Heat transfer and material flow during laser assisted multi-layer additive manufacturing. Journal of Applied Physics, 2014, 116, .	1.1	249
17	Mechanistic models for additive manufacturing of metallic components. Progress in Materials Science, 2021, 116, 100703.	16.0	246
18	Friction stir welding of dissimilar alloys â€“ a perspective. Science and Technology of Welding and Joining, 2010, 15, 266-270.	1.5	243

#	Article	IF	Citations
19	Current Issues and Problems in Welding Science. Science, 1992, 257, 497-502.	6.0	224
20	Metallurgy, mechanistic models and machine learning in metal printing. Nature Reviews Materials, 2021, 6, 48-68.	23.3	220
21	Toward optimum friction stir welding tool shoulder diameter. Scripta Materialia, 2011, 64, 9-12.	2.6	219
22	Phase transformation dynamics during welding of Tiâ€“6Alâ€“4V. Journal of Applied Physics, 2004, 95, 8327-8339.	1.1	214
23	Numerical modelling of 3D plastic flow and heat transfer during friction stir welding of stainless steel. Science and Technology of Welding and Joining, 2006, 11, 526-537.	1.5	206
24	Spatial variation of melt pool geometry, peak temperature and solidification parameters during laser assisted additive manufacturing process. Materials Science and Technology, 2015, 31, 924-930.	0.8	202
25	Problems and issues in laser-arc hybrid welding. International Materials Reviews, 2009, 54, 223-244.	9.4	193
26	A digital twin for rapid qualification of 3D printed metallic components. Applied Materials Today, 2019, 14, 59-65.	2.3	190
27	Origin of grain orientation during solidification of an aluminum alloy. Acta Materialia, 2016, 115, 123-131.	3.8	189
28	Modeling of heat transfer and fluid flow during gas tungsten arc spot welding of low carbon steel. Journal of Applied Physics, 2003, 93, 3022-3033.	1.1	177
29	Strains and strain rates during friction stir welding. Scripta Materialia, 2009, 61, 863-866.	2.6	171
30	Building digital twins of 3D printing machines. Scripta Materialia, 2017, 135, 119-124.	2.6	170
31	Heat and fluid flow in additive manufacturing â€“ Part II: Powder bed fusion of stainless steel, and titanium, nickel and aluminum base alloys. Computational Materials Science, 2018, 150, 369-380.	1.4	169
32	Weld metal composition change during conduction mode laser welding of aluminum alloy 5182. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2001, 32, 163-172.	1.0	167
33	Torque, power requirement and stir zone geometry in friction stir welding through modeling and experiments. Scripta Materialia, 2009, 60, 13-16.	2.6	154
34	Mitigation of thermal distortion during additive manufacturing. Scripta Materialia, 2017, 127, 79-83.	2.6	151
35	Mitigation of lack of fusion defects in powder bed fusion additive manufacturing. Journal of Manufacturing Processes, 2018, 36, 442-449.	2.8	141
36	Origin of stray grain formation in single-crystal superalloy weld pools from heat transfer and fluid flow modeling. Acta Materialia, 2010, 58, 1441-1454.	3.8	134

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37	Three-dimensional modeling of grain structure evolution during welding of an aluminum alloy. Acta Materialia, 2017, 126, 413-425.	3.8	132
38	Fusion zone geometries, cooling rates and solidification parameters during wire arc additive manufacturing. International Journal of Heat and Mass Transfer, 2018, 127, 1084-1094.	2.5	130
39	NUMERICAL PREDICTION OF FLUID FLOW AND HEAT TRANSFER IN WELDING WITH A MOVING HEAT SOURCE. Numerical Heat Transfer; Part A: Applications, 1996, 29, 115-129.	1.2	127
40	Heat and fluid flow in additive manufacturingâ€”Part I: Modeling of powder bed fusion. Computational Materials Science, 2018, 150, 304-313.	1.4	127
41	Modeling of temperature field and solidified surface profile during gasâ€“metal arc fillet welding. Journal of Applied Physics, 2003, 94, 2667-2679.	1.1	126
42	Critical assessment: Friction stir welding of steels. Science and Technology of Welding and Joining, 2009, 14, 193-196.	1.5	121
43	Free surface flow and heat transfer in conduction mode laser welding. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1988, 19, 851-858.	0.5	119
44	Heat transfer and fluid flow in laser microwelding. Journal of Applied Physics, 2005, 97, 084909.	1.1	117
45	Heat transfer and fluid flow in additive manufacturing. Journal of Laser Applications, 2013, 25, .	0.8	117
46	Dimensionless numbers in additive manufacturing. Journal of Applied Physics, 2017, 121, .	1.1	115
47	Heat transfer and fluid flow during electron beam welding of 21Crâ€“6Niâ€“9Mn steel and Tiâ€“6Alâ€“4V alloy. Journal Physics D: Applied Physics, 2009, 42, 025503.	1.3	113
48	Three dimensional Monte Carlo simulation of grain growth during GTA welding of titanium. Acta Materialia, 2000, 48, 4813-4825.	3.8	112
49	A smart model to estimate effective thermal conductivity and viscosity in the weld pool. Journal of Applied Physics, 2004, 95, 5230-5240.	1.1	106
50	Development of macro- and microstructures of carbonâ€“manganese low alloy steel welds: inclusion formation. Materials Science and Technology, 1995, 11, 186-199.	0.8	104
51	Macroporosity free aluminum alloy weldments through numerical simulation of keyhole mode laser welding. Journal of Applied Physics, 2003, 93, 10089-10096.	1.1	104
52	Heat and fluid flow in complex joints during gas metal arc weldingâ€”Part I: Numerical model of fillet welding. Journal of Applied Physics, 2004, 95, 5210-5219.	1.1	103
53	Mechanism of alloying element vaporization during laser welding. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1987, 18, 733-740.	0.5	102
54	Heat transfer during Nd: Yag pulsed laser welding and its effect on solidification structure of austenitic stainless steels. Metallurgical and Materials Transactions A - Physical Metallurgy and Materials Science, 1989, 20, 957-967.	1.4	101

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55	Effect of temperature and composition on surface tension in Fe-Ni-Cr alloys containing sulfur. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1991, 22, 557-560.	0.5	98
56	Kinetic modeling of phase transformations occurring in the HAZ of C-Mn steel welds based on direct observations. Acta Materialia, 2003, 51, 3333-3349.	3.8	97
57	A Convective Heat-Transfer Model for Partial and Full Penetration Keyhole Mode Laser Welding of a Structural Steel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2008, 39, 98-112.	1.1	97
58	Numerical simulation of heat transfer and fluid flow in GTA/Laser hybrid welding. Science and Technology of Welding and Joining, 2008, 13, 683-693.	1.5	96
59	Calculation of three-dimensional electromagnetic force field during arc welding. Journal of Applied Physics, 2003, 94, 1267-1277.	1.1	95
60	Tool Geometry for Friction Stir Weldingâ€”Optimum Shoulder Diameter. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 2716-2722.	1.1	94
61	The Hardness of Additively Manufactured Alloys. Materials, 2018, 11, 2070.	1.3	94
62	Load bearing capacity of tool pin during friction stir welding. International Journal of Advanced Manufacturing Technology, 2012, 61, 911-920.	1.5	93
63	Modeling macro-and microstructures of Gas-Metal-Arc Welded HSLA-100 steel. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 1999, 30, 483-493.	1.0	91
64	Residual stresses and distortion in additively manufactured compositionally graded and dissimilar joints. Computational Materials Science, 2018, 143, 325-337.	1.4	91
65	Crystal growth during keyhole mode laser welding. Acta Materialia, 2017, 133, 10-20.	3.8	86
66	Additive manufacturing of functionally graded transition joints between ferritic and austenitic alloys. Journal of Alloys and Compounds, 2019, 770, 995-1003.	2.8	81
67	Modeling and real time mapping of phases during GTA welding of 1005 steel. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2002, 333, 320-335.	2.6	79
68	Heat and fluid flow in complex joints during gas metal arc weldingâ€”Part II: Application to fillet welding of mild steel. Journal of Applied Physics, 2004, 95, 5220-5229.	1.1	78
69	Alloying element vaporization during laser spot welding of stainless steel. Journal Physics D: Applied Physics, 2003, 36, 3079-3088.	1.3	77
70	A computationally efficient model of convective heat transfer and solidification characteristics during keyhole mode laser welding. Journal of Applied Physics, 2007, 101, 054909.	1.1	75
71	Energy absorption by metalâ€vaporâ€dominated plasma during carbon dioxide laser welding of steels. Journal of Applied Physics, 1990, 68, 2045-2050.	1.1	74
72	Role of heat transfer and fluid flow in the chemical vapor deposition of diamond. Journal of Applied Physics, 1990, 68, 2424-2432.	1.1	72

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73	A perspective on residual stresses in welding. Science and Technology of Welding and Joining, 2011, 16, 204-208.	1.5	72
74	An experimental and theoretical study of gas tungsten arc welding of stainless steel plates with different sulfur concentrations. Acta Materialia, 2008, 56, 2133-2146.	3.8	70
75	Back-of-the-envelope calculations in friction stir welding â€“ Velocities, peak temperature, torque, and hardness. Acta Materialia, 2011, 59, 2020-2028.	3.8	70
76	Toward an integrated computational system for describing the additive manufacturing process for metallic materials. Additive Manufacturing, 2014, 1-4, 52-63.	1.7	70
77	Solidification Map of a Nickel-Base Alloy. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 2142-2151.	1.1	68
78	A heat-transfer and fluid-flow-based model to obtain a specific weld geometry using various combinations of welding variables. Journal of Applied Physics, 2005, 98, 044902.	1.1	67
79	Alloying element vaporization and weld pool temperature during laser welding of AISI 202 stainless steel. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1984, 15, 641-644.	0.5	66
80	Probing temperature during laser spot welding from vapor composition and modeling. Journal of Applied Physics, 2003, 94, 6949-6958.	1.1	66
81	Calculation of weld metal composition change in high-power conduction mode carbon dioxide laser-welded stainless steels. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1993, 24, 145-155.	0.5	65
82	Three-dimensional grain growth during multi-layer printing of a nickel-based alloy Inconel 718. Additive Manufacturing, 2019, 25, 448-459.	1.7	64
83	Heat Transfer and Fluid Flow during Gas-Metal-Arc Fillet Welding for Various Joint Configurations and Welding Positions. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 506-519.	1.1	63
84	Continuous wave-Nd: yttriumâ€“aluminumâ€“garnet laser welding of AM60B magnesium alloy. Journal of Laser Applications, 2000, 12, 91-100.	0.8	62
85	Toward reliable calculations of heat and plastic flow during friction stir welding of Ti-6Al-4V alloy. International Journal of Materials Research, 2008, 99, 434-444.	0.1	60
86	Experiments and simulations on solidification microstructure for Inconel 718 in powder bed fusion electron beam additive manufacturing. Additive Manufacturing, 2019, 25, 511-521.	1.7	59
87	Liquid metal expulsion during laser irradiation. Journal of Applied Physics, 1992, 72, 3317-3322.	1.1	57
88	Stray Grain Formation in Welds of Single-Crystal Ni-Base Superalloy CMSX-4. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2010, 41, 181-193.	1.1	57
89	Probing unknown welding parameters from convective heat transfer calculation and multivariable optimization. Journal Physics D: Applied Physics, 2004, 37, 140-150.	1.3	56
90	Geometry of laser spot welds from dimensionless numbers. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2001, 32, 941-947.	1.0	54

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91	Oxidation of diamond films synthesized by hot filament assisted chemical vapor deposition. Journal of Materials Research, 1990, 5, 2483-2489.	1.2	52
92	Probing laser induced metal vaporization by gas dynamics and liquid pool transport phenomena. Journal of Applied Physics, 1991, 70, 1313-1319.	1.1	52
93	Phenomenological Modeling of Fusion Welding Processes. MRS Bulletin, 1994, 19, 29-35.	1.7	52
94	Emission spectroscopy of plasma during laser welding of AISI 201 stainless steel. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 1989, 20, 277-286.	1.0	51
95	Non-isothermal grain growth in metals and alloys. Materials Science and Technology, 2006, 22, 253-278.	0.8	50
96	Improving reliability of heat and fluid flow calculation during conduction mode laser spot welding by multivariable optimisation. Science and Technology of Welding and Joining, 2006, 11, 143-153.	1.5	49
97	Conditions for void formation in friction stir welding from machine learning. Npj Computational Materials, 2019, 5, .	3.5	49
98	Composition change of stainless steel during microjoining with short laser pulse. Journal of Applied Physics, 2004, 96, 4547-4555.	1.1	48
99	Cooling rates and peak temperatures during friction stir welding of a high-carbon steel. Scripta Materialia, 2015, 94, 36-39.	2.6	48
100	A pathway to microstructural refinement through double pulsed gas metal arc welding. Scripta Materialia, 2017, 134, 61-65.	2.6	48
101	Special features of double pulsed gas metal arc welding. Journal of Materials Processing Technology, 2018, 251, 369-375.	3.1	48
102	Liquid metal expulsion during laser spot welding of 304 stainless steel. Journal Physics D: Applied Physics, 2006, 39, 525-534.	1.3	47
103	Mathematical modeling of heat transfer, fluid flow, and solidification during linear welding with a pulsed laser beam. Journal of Applied Physics, 2006, 100, 034903.	1.1	46
104	Unusual wavy weld pool boundary from dimensional analysis. Scripta Materialia, 2009, 60, 68-71.	2.6	46
105	Three-dimensional monte carlo simulation of grain growth in the heat-affected zone of a 2.25Cr-1Mo steel weld. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2000, 31, 529-536.	1.0	45
106	Dimensionless correlation to estimate peak temperature during friction stir welding. Science and Technology of Welding and Joining, 2006, 11, 606-608.	1.5	44
107	Modeling of ferrite formation in a duplex stainless steel weld considering non-uniform starting microstructure. Acta Materialia, 2005, 53, 4441-4453.	3.8	43
108	Neural network models of peak temperature, torque, traverse force, bending stress and maximum shear stress during friction stir welding. Science and Technology of Welding and Joining, 2012, 17, 460-466.	1.5	42

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109	Real time monitoring of laser beam welding keyhole depth by laser interferometry. Science and Technology of Welding and Joining, 2014, 19, 560-564.	1.5	42
110	Modeling of the role of atomic hydrogen in heat transfer during hot filament assisted deposition of diamond. Journal of Applied Physics, 1992, 72, 712-718.	1.1	41
111	Interdiffusion in the MgO-Al2O3 spinel with or without some dopants. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1996, 27, 2105-2114.	1.1	40
112	In situobservations of weld pool solidification using transparent metal-analog systems. Journal of Applied Physics, 2003, 93, 4885-4895.	1.1	40
113	Friction stir welding of mild steel: Tool durability and steel microstructure. Materials Science and Technology, 2014, 30, 1050-1056.	0.8	40
114	Residual stresses and distortion in the patterned printing of titanium and nickel alloys. Additive Manufacturing, 2019, 29, 100808.	1.7	40
115	Residual stresses in wire-arc additive manufacturing â€“ Hierarchy of influential variables. Additive Manufacturing, 2020, 35, 101355.	1.7	40
116	Effects of oxygen and sulfur on alloying element vaporization rates during laser welding. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1988, 19, 967-972.	0.5	39
117	Modeling of inclusion growth and dissolution in the weld pool. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2000, 31, 161-169.	1.0	38
118	Diamond formation in air by the Fedoseev-Derjaguin laser process. Carbon, 1989, 27, 289-294.	5.4	37
119	Mechanisms of Spiking and Humping in Keyhole Welding. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 383-394.	1.4	37
120	Machine learning based hierarchy of causative variables for tool failure in friction stir welding. Acta Materialia, 2020, 192, 67-77.	3.8	37
121	Hydrogen assisted heat transfer during diamond growth using carbon and tantalum filaments. Applied Physics Letters, 1992, 60, 2068-2070.	1.5	36
122	Kinetics of ferrite to austenite transformation during welding of 1005 steel. Scripta Materialia, 2002, 46, 753-757.	2.6	36
123	Material adhesion and stresses on friction stir welding tool pins. Science and Technology of Welding and Joining, 2014, 19, 534-540.	1.5	36
124	Guaranteed fillet weld geometry from heat transfer model and multivariable optimization. International Journal of Heat and Mass Transfer, 2004, 47, 5793-5806.	2.5	35
125	Tailoring weld geometry during keyhole mode laser welding using a genetic algorithm and a heat transfer model. Journal Physics D: Applied Physics, 2006, 39, 1257-1266.	1.3	34
126	Physics-informed machine learning and mechanistic modeling of additive manufacturing to reduce defects. Applied Materials Today, 2021, 24, 101123.	2.3	34

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127	Towards developing multiscale-multiphysics models and their surrogates for digital twins of metal additive manufacturing. Additive Manufacturing, 2021, 46, 102089.	1.7	34
128	Absorption and transport of hydrogen during gas metal arc welding of low alloy steel. Science and Technology of Welding and Joining, 1997, 2, 174-184.	1.5	33
129	Integrated modelling of thermal cycles, austenite formation, grain growth and decomposition in the heat affected zone of carbon steel. Science and Technology of Welding and Joining, 2005, 10, 574-582.	1.5	33
130	The case for digital twins in metal additive manufacturing. JPhys Materials, 2021, 4, 040401.	1.8	33
131	A computational procedure for finding multiple solutions of convective heat transfer equations. Journal Physics D: Applied Physics, 2005, 38, 2977-2985.	1.3	32
132	Tool durability maps for friction stir welding of an aluminium alloy. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 3552-3570.	1.0	32
133	Modeling of interfacial phenomena in welding. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1990, 21, 600-603.	0.5	31
134	A general model for partitioning of gases between a metal and its plasma environment. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 1995, 26, 149-157.	1.0	31
135	Pore formation during continuous wave Nd:YAG laser welding of aluminium for automotive applications. Welding International, 2001, 15, 275-281.	0.3	31
136	Optimization of the johnson-mehl-avarami equation parameters for Î±-ferrite to Î³-austenite transformation in steel welds using a genetic algorithm. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2005, 36, 15-22.	1.1	31
137	Numerical modeling of enhanced nitrogen dissolution during gas tungsten Arc welding. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2000, 31, 1371-1385.	1.0	30
138	An improved heat transfer and fluid flow model of wire-arc additive manufacturing. International Journal of Heat and Mass Transfer, 2021, 167, 120835.	2.5	29
139	A Genetic Algorithm-Assisted Inverse Convective Heat Transfer Model for Tailoring Weld Geometry. Materials and Manufacturing Processes, 2009, 24, 384-397.	2.7	28
140	The effects of Prandtl number on wavy weld boundary. International Journal of Heat and Mass Transfer, 2009, 52, 3790-3798.	2.5	28
141	Printability of 316 stainless steel. Science and Technology of Welding and Joining, 2019, 24, 412-419.	1.5	28
142	Numerical calculation of fluid flow in a continuous casting tundish. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1985, 16, 497-504.	0.5	27
143	Nitrogen activity determination in plasmas. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1992, 23, 207-214.	0.5	27
144	Tailoring gas tungsten arc weld geometry using a genetic algorithm and a neural network trained with convective heat flow calculations. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 454-455, 477-486.	2.6	27

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145	Optical emission spectroscopy of metal vapor dominated laser-arc hybrid welding plasma. Journal of Applied Physics, 2011, 109, .	1.1	27
146	Diamond growth with locally supplied methane and acetylene. Journal of Materials Research, 1992, 7, 379-383.	1.2	26
147	Kinetics of directed oxidation of Al-Mg alloys in the initial and final stages of synthesis of Al2O3/Al composites. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1996, 210, 64-75.	2.6	26
148	Coarsening of oxide inclusions in low alloy steel welds. Science and Technology of Welding and Joining, 1996, 1, 17-27.	1.5	26
149	Time-temperature-transformation diagrams for the growth and dissolution of inclusions in liquid steels. Scripta Materialia, 2001, 44, 847-852.	2.6	25
150	Spatial and temporal variation of hardness of a printed steel part. Acta Materialia, 2021, 209, 116775.	3.8	25
151	Oxide Matrix Composite by Directional Oxidation of a Commercial Aluminum-Magnesium Alloy. Journal of the American Ceramic Society, 1994, 77, 1296-1300.	1.9	24
152	Nonisothermal growth and dissolution of inclusions in liquid steels. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2003, 34, 267-269.	1.0	24
153	Probing liquation cracking and solidification through modeling of momentum, heat, and solute transport during welding of aluminum alloys. Journal of Applied Physics, 2005, 97, 094912.	1.1	24
154	Time resolved X-ray diffraction observations of phase transformations in transient arc welds. Science and Technology of Welding and Joining, 2008, 13, 265-277.	1.5	24
155	Role of surface-active elements during keyhole-mode laser welding. Journal Physics D: Applied Physics, 2011, 44, 485203.	1.3	24
156	Quantitative modelling of motion, temperature gyrations, and growth of inclusions in weld pool. Science and Technology of Welding and Joining, 1998, 3, 33-41.	1.5	23
157	Grain topology in Tiâ€“6Alâ€“4V weldsâ€”Monte Carlo simulation and experiments. Journal Physics D: Applied Physics, 2004, 37, 2191-2196.	1.3	22
158	Harnessing the scientific synergy of welding and additive manufacturing. Science and Technology of Welding and Joining, 2019, 24, 361-366.	1.5	22
159	Crack free metal printing using physics informed machine learning. Acta Materialia, 2022, 226, 117612.	3.8	22
160	Interfacial tension between low pressure argon plasma and molten copper and iron. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1987, 18, 597-601.	0.5	21
161	Enhanced dissolution of nitrogen during gas tungsten arc welding of steels. Science and Technology of Welding and Joining, 1998, 3, 190-203.	1.5	21
162	Three-dimensional monte carlo simulation of grain growth in zone-refined iron. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2001, 32, 1195-1201.	1.0	21

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163	Influence of oxygen on weld geometry in fibre laser and fibre laserâ€“GMA hybrid welding. Science and Technology of Welding and Joining, 2011, 16, 166-173.	1.5	20
164	Absorption of CO2 laser beam by AISI 4340 steel. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1985, 16, 853-856.	0.5	19
165	Asymmetry in steel welds with dissimilar amounts of sulfur. Scripta Materialia, 2015, 108, 88-91.	2.6	19
166	Weld bead center line shift during laser welding of austenitic stainless steels with different sulfur content. Scripta Materialia, 2014, 71, 37-40.	2.6	17
167	Highâ€pressure phases of SiO2made in air by Fedoseevâ€“Derjaguin laser process. Applied Physics Letters, 1988, 53, 1687-1689.	1.5	16
168	Effects of time, temperature, and steel composition on growth and dissolution of inclusions in liquid steels. Ironmaking and Steelmaking, 2001, 28, 450-454.	1.1	16
169	Origin of wavy weld boundary. Journal of Applied Physics, 2009, 105, .	1.1	15
170	Cooling rate in 800 to 500Â°C range from dimensional analysis. Science and Technology of Welding and Joining, 2010, 15, 423-427.	1.5	15
171	Scaling of spiking and humping in keyhole welding. Journal Physics D: Applied Physics, 2011, 44, 245501.	1.3	15
172	The effects of CO and CO2 on the rate of Na2CO3 catalyzed boudouard reaction. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1984, 15, 400-403.	0.5	14
173	Electronic and ionic transport in liquid PbO-SiO2 systems. Metallurgical and Materials Transactions B - Process Metallurgy and Materials Processing Science, 1985, 16, 77-82.	0.5	14
174	Tailoring complex weld geometry through reliable heat-transfer and fluid-flow calculations and a genetic algorithm. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2005, 36, 2725-2735.	1.1	14
175	Improving reliability of modelling heat and fluid flow in complex gas metal arc fillet weldsâ€”part I: an engineering physics model. Journal Physics D: Applied Physics, 2005, 38, 119-126.	1.3	14
176	Neural network model of heat and fluid flow in gas metal arc fillet welding based on genetic algorithm and conjugate gradient optimisation. Science and Technology of Welding and Joining, 2006, 11, 106-119.	1.5	14
177	Growth stage kinetics in the synthesis of Al2O3/Al composites by directed oxidation of Al-Mg and Al-Mg-Si alloys. Journal of the European Ceramic Society, 1996, 16, 1351-1363.	2.8	13
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