Douglas M Matson

List of Publications by Year in Descending Order

66 papers	373 citations	12 h-index	17 g-index
68 ext. papers	427 ext. citations	3.8 avg, IF	4.01 L-index

#	Paper	IF	Citations
66	Influence of Convection on Phase Selection. *Minerals, Metals and Materials Series*, **2022**, 299-313	0.3	
65	Impact of convection on the damping of an oscillating droplet during viscosity measurement using the ISS-EML facility. *Npj Microgravity*, **2021**, 7, 36	5.3	0
64	Thermophysical properties of the TiAl-2Cr-2Nb alloy in the liquid phase measured with an electromagnetic levitation device on board the International Space Station, ISS-EML. *International Journal of Materials Research*, **2021**, 112, 770-781	0.5	0
63	Retained Free Energy with Enhanced Nucleation during Electrostatic Levitation of Undercooled Fe-Co Alloys. *Crystals*, **2021**, 11, 730	2.3	
62	Dendrite remelting during rapid solidification of undercooled CoSi-CoSi2 eutectic alloys quantified by in situ synchrotron X-ray diffraction. *Scripta Materialia*, **2021**, 194, 113645	5.6	1
61	Particle size effects on dislocation density, microstructure, and phase transformation for high-entropy alloy powders. *Materialia*, **2021**, 18, 101161	3.2	1
60	MHD surrogate model for convection in electromagnetically levitated molten metal droplets processed using the ISS-EML facility. *Npj Microgravity*, **2020**, 6, 9	5.3	3
59	Density, excess volume, and structure of Fe-Cr-Ni melts. *Journal of Chemical Physics*, **2020**, 152, 094501	3.9	1
58	Statistical learning for evaluation of crystal growth in low-melting alloy droplets with application to quasicrystal-forming Ti2ZrNi alloys. *Modelling and Simulation in Materials Science and Engineering*, **2020**, 28, 085008	2	
57	Influence of Induced Convection on Transformation Kinetics During Rapid Solidification of Steel Alloys: The Retained Damage Model. *Jom*, **2020**, 72, 4109-4116	2.1	6
56	Tracking Evaporation During Levitation Processing of Nickel-Based Superalloys on the ISS. *Jom*, **2020**, 72, 3132-3139	2.1	4
55	In situ and ex situ studies of anomalous eutectic formation in undercooled Ni3Sn alloys. *Acta Materialia*, **2020**, 197, 198-211	8.4	4
54	Materials Research in Reduced Gravity 2020. *Jom*, **2020**, 72, 3121-3122	2.1	
53	Numerical representations for flow velocity and shear rate inside electromagnetically levitated droplets in microgravity. *Npj Microgravity*, **2019**, 5, 7	5.3	10
52	Surrogate model for convective flow inside electromagnetically levitated molten droplet using magnetohydrodynamic simulation and feature analysis. *International Journal of Heat and Mass Transfer*, **2019**, 136, 531-542	4.9	13
51	Hypercooling limit, heat of fusion, and temperature-dependent specific heat of Fe-Cr-Ni melts. *Journal of Chemical Thermodynamics*, **2019**, 138, 51-58	2.9	1
50	Metastable solidification pathways of undercooled eutectic CoSiCoSi2 alloys. *Acta Materialia*, **2019**, 176, 43-52	8.4	8

49	Modeling of Fluid Flow Effects on Experiments Using Electromagnetic Levitation in Reduced Gravity. *Minerals, Metals and Materials Series*, **2019**, 171-180	0.3	
48	Identifying metastable interface potency limits during steel alloy transformations. *Materials Letters* , **2018**, 212, 256-258	3.3	6
47	Metastable solidification of hypereutectic Co2Si-CoSi composition: Microstructural studies and in-situ observations. *Acta Materialia*, **2018**, 142, 172-180	8.4	17
46	Deformation induced frequency shifts of oscillating droplets during molten metal surface tension measurement. *Applied Physics Letters*, **2018**, 113, 011903	3.4	16
45	Retained free energy as a driving force for phase transformation during rapid solidification of stainless steel alloys in microgravity. *Npj Microgravity*, **2018**, 4, 22	5.3	13
44	Lateral heat flux and remelting during growth into the mushy-zone. *Acta Materialia*, **2017**, 129, 408-414	8.4	7
43	Use of Thermophysical Properties to Select and Control Convection During Rapid Solidification of Steel Alloys Using Electromagnetic Levitation on the Space Station. *Jom*, **2017**, 69, 1311-1318	2.1	17
42	Solidification Behavior in Reduced Gravity. *Jom*, **2017**, 69, 1258-1260	2.1	
41	Solidification velocity of undercooled Fe□o alloys. *Acta Materialia*, **2017**, 122, 431-437	8.4	29
40	Formation of Cellular Structure on Metastable Solidification of Undercooled Eutectic CoSi-62 at. %. *Crystals*, **2017**, 7, 295	2.3	1
39	Real-Time Acoustic and Pressure Characterization of Two-Phase Flow for Quality Control of Expanded Polystyrene Injection Molding Processes. *Journal of Manufacturing Science and Engineering, Transactions of the ASME*, **2016**, 138,	3.3	1
38	Numerical Prediction of the Accessible Convection Range for an Electromagnetically Levitated Fe50Co50 Droplet in Space. *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, **2015**, 46, 199-207	2.5	19
37	Thermodynamic modeling of the solidification path of levitated Fe□o alloys. *Calphad: Computer Coupling of Phase Diagrams and Thermochemistry*, **2015**, 49, 87-100	1.9	12
36	Measurement of Density of Fe-Co Alloys Using Electrostatic Levitation. *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, **2015**, 46, 2470-2475	2.5	14
35	Magnetohydrodynamic Modeling and Experimental Validation of Convection Inside Electromagnetically Levitated Co-Cu Droplets. *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, **2014**, 45, 1018-1023	2.5	38
34	Prediction of Mass Evaporation of (mathrm{Fe}_{50}mathrm{Co} _{50}) During Measurements of Thermophysical Properties Using an Electrostatic Levitator. *International Journal of Thermophysics*, **2014**, 35, 1697-1704	2.1	11
33	Modeling the Fluid Dynamics and Dendritic Solidification in EM-Levitated Alloy Melts **2012**, 321-348		3
32	Particle-Based Computer Simulation of Crystal Nucleation and Growth Kinetics in Undercooled Melts **2012**, 381-401		1

31	Materials Science in Reduced Gravity. *Jom*, **2012**, 64, 1087-1088	2.1	1
30	Solidification of Peritectic Alloys **2012**, 509-541		1
29	Characterization and Optimization of Fluid Flow in a High Biot Number System. *Materials Research Society Symposia Proceedings*, **2011**, 1306, 1		
28	Expanded Polystyrene Lost Foam Casting Modeling Bead Steaming Operations. *Journal of Manufacturing Science and Engineering, Transactions of the ASME*, **2007**, 129, 425-434	3.3	4
27	Microgravity experiments on the effect of internal flow on solidification of Fe-Cr-Ni stainless steels. *Annals of the New York Academy of Sciences*, **2006**, 1077, 33-48	6.5	9
26	Role of sample size in the nucleation kinetics of phase transformations in steel alloys. *Microgravity Science and Technology*, **2005**, 16, 55-58	1.6	3
25	Contrasting electrostatic and electromagnetic levitation experimental results for transformation kinetics of steel alloys. *Annals of the New York Academy of Sciences*, **2004**, 1027, 435-46	6.5	24
24	Convection in containerless processing. *Annals of the New York Academy of Sciences*, **2004**, 1027, 474-94	6.5	48
23	Combustion synthesis of intermetallic compounds using titanium, nickel and copper wires **1992**, 700-705		
22	Thermography Assisted Fatigue Testing193-200		
21	Containerless Crystallization of Semiconductors261-279		
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19	Effects of Transient Heat and Mass Transfer on Competitive Nucleation and Phase Selection in Drop Tube Processing of Multicomponent Alloys139-159		
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