Sudarsanam Babu

List of Publications by Citations

269 papers	10,616 citations	57 h-index	92 g-index
286 ext. papers	12,368 ext. citations	4.1 avg, IF	6.59 L-index

#	Paper	IF	Citations
269	The metallurgy and processing science of metal additive manufacturing. *International Materials Reviews*, **2016**, 61, 315-360	16.1	1185
268	Site specific control of crystallographic grain orientation through electron beam additive manufacturing. *Materials Science and Technology*, **2015**, 31, 931-938	1.5	303
267	Atomic scale observations of bainite transformation in a high carbon high silicon steel. *Acta Materialia*, **2007**, 55, 381-390	8.4	273
266	Numerical modeling of heat-transfer and the influence of process parameters on tailoring the grain morphology of IN718 in electron beam additive manufacturing. *Acta Materialia*, **2016**, 112, 303-314	8.4	271
265	The mechanism of acicular ferrite in weld deposits. *Current Opinion in Solid State and Materials Science*, **2004**, 8, 267-278	12	200
264	In-situ observations of lattice parameter fluctuations in austenite and transformation to bainite. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2005**, 36, 3281-3289	2.3	180
263	Phase transformation dynamics during welding of Ti□Al□V. *Journal of Applied Physics*, **2004**, 95, 8327-8339	2.5	178
262	In situ observations of lattice expansion and transformation rates of □ and □ phases in Ti□Al□V. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 391, 104-113	5.3	171
261	Comparison of Residual Stresses in Inconel 718 Simple Parts Made by Electron Beam Melting and Direct Laser Metal Sintering. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2015**, 46, 1419-1432	2.3	150
260	Welding: Solidification and microstructure. *Jom*, **2003**, 55, 14-20	2.1	150
259	Rationalization of Microstructure Heterogeneity in INCONEL 718 Builds Made by the Direct Laser Additive Manufacturing Process. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2014**, 45, 4470-4483	2.3	142
258	Application of high velocity impact welding at varied different length scales. *Journal of Materials Processing Technology*, **2011**, 211, 944-952	5.3	139
257	Thermal effects on microstructural heterogeneity of Inconel 718 materials fabricated by electron beam melting. *Journal of Materials Research*, **2014**, 29, 1920-1930	2.5	136
256	Fusion and friction stir welding of aluminum-metal-matrix composites. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2005**, 36, 3237-3247	2.3	134
255	Identification of the partitioning characteristics of ruthenium in single crystal superalloys using atom probe tomography. *Scripta Materialia*, **2004**, 51, 327-331	5.6	125
254	Building digital twins of 3D printing machines. *Scripta Materialia*, **2017**, 135, 119-124	5.6	115
253	Powder bed binder jet 3D printing of Inconel 718: Densification, microstructural evolution and challenges?. *Current Opinion in Solid State and Materials Science*, **2017**, 21, 207-218	12	114

252	Characterization of interfacial microstructures in 3003 aluminum alloy blocks fabricated by ultrasonic additive manufacturing. *Acta Materialia*, **2010**, 58, 4305-4315	8.4	113
251	Time-resolved X-ray diffraction investigation of primary weld solidification in Fe-C-Al-Mn steel welds. *Acta Materialia*, **2002**, 50, 4763-4781	8.4	109
250	Redistribution of alloying elements during tempering of a nanocrystalline steel. *Acta Materialia*, **2008**, 56, 188-199	8.4	108
249	Characterization of the microstructure evolution in a nickel base superalloy during continuous cooling conditions. *Acta Materialia*, **2001**, 49, 4149-4160	8.4	108
248	Three-dimensional atom probe analysis of carbon distribution in low-temperature bainite. *Scripta Materialia*, **2004**, 50, 1277-1281	5.6	102
247	Localized melt-scan strategy for site specific control of grain size and primary dendrite arm spacing in electron beam additive manufacturing. *Acta Materialia*, **2017**, 140, 375-387	8.4	99
246	Effect of ultrasonic welding parameters on microstructure and mechanical properties of dissimilar joints. *Materials & Design*, **2014**, 55, 263-273		93
245	Empirical model of effects of pressure and temperature on electrical contact resistance of metals. *Science and Technology of Welding and Joining*, **2001**, 6, 126-132	3.7	89
244	Atom probe study of the precipitation process in Al?Cu?Mg?Ag alloys. *Acta Metallurgica Et Materialia*, **1993**, 41, 829-838		88
243	Computational modeling of residual stress formation during the electron beam melting process for Inconel 718. *Additive Manufacturing*, **2015**, 7, 83-91	6.1	87
242	Additive Manufacturing of Nickel Superalloys: Opportunities for Innovation and Challenges Related to Qualification. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2018**, 49, 3764-3780	2.3	85
241	Synchrotron X-ray studies of austenite and bainitic ferrite. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2008**, 464, 1009-1027	2.4	82
240	Recyclability Study on Inconel 718 and Ti-6Al-4V Powders for Use in Electron Beam Melting. *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, **2016**, 47, 754-762	2.5	81
239	Mechanism of weld formation during very-high-power ultrasonic additive manufacturing of Al alloy 6061. *Acta Materialia*, **2014**, 74, 234-243	8.4	81
238	Development of macro- and microstructures of carbon–manganese low alloy steel welds: inclusion formation. *Materials Science and Technology*, **1995**, 11, 186-199	1.5	79
237	Effect of grain size refinement and precipitation reactions on strengthening in friction stir processed Al–Cu alloys. *Scripta Materialia*, **2011**, 65, 1057-1060	5.6	78
236	Bonding characteristics during very high power ultrasonic additive manufacturing of copper. *Scripta Materialia*, **2010**, 62, 560-563	5.6	78
235	Development of rapid heating and cooling (flash processing) process to produce advanced high strength steel microstructures. *Materials Science and Technology*, **2011**, 27, 863-875	1.5	77

234	Atom probe field ion microscopy study of the partitioning of substitutional elements during tempering of a low-alloy steel martensite. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **1994**, 25, 499-508	2.3	76
233	Evaluation of an Al-Ce alloy for laser additive manufacturing. *Acta Materialia*, **2017**, 126, 507-519	8.4	75
232	Effect of Fluid Convection on Dendrite Arm Spacing in Laser Deposition. *Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science*, **2014**, 45, 1520-1529	2.5	73
231	Welding of nickel base superalloy single crystals. *Science and Technology of Welding and Joining*, **1997**, 2, 79-88	3.7	71
230	Thermographic Microstructure Monitoring in Electron Beam Additive Manufacturing. *Scientific Reports*, **2017**, 7, 43554	4.9	70
229	Additive manufacturing of complex-shaped graded TiC/steel composites. *Materials and Design*, **2017**, 118, 198-203	8.1	69
228	Additive manufacturing of materials: Opportunities and challenges. *MRS Bulletin*, **2015**, 40, 1154-1161	3.2	69
227	Metallic materials for 3D printing. *MRS Bulletin*, **2016**, 41, 729-741	3.2	69
226	Microstructure Development in Electron Beam-Melted Inconel 718 and Associated Tensile Properties. *Jom*, **2016**, 68, 1012-1020	2.1	69
225	Rationalization of anisotropic mechanical properties of Al-6061 fabricated using ultrasonic additive manufacturing. *Acta Materialia*, **2016**, 117, 228-237	8.4	68
224	Stray grain formation in single crystal Ni-base superalloy welds. *Journal of Applied Physics*, **2003**, 94, 4203-4209	2.5	67
223	Quantitative Evaluation of Bulk and Interface Microstructures in Al-3003 Alloy Builds Made by Very High Power Ultrasonic Additive Manufacturing. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2011**, 42, 4045-4055	2.3	64
222	Thermal transients during processing of materials by very high power ultrasonic additive manufacturing. *Journal of Materials Processing Technology*, **2011**, 211, 1650-1657	5.3	64
221	Mechanism of the Transition from Bainite to Acicular Ferrite. *Materials Transactions, JIM*, **1991**, 32, 679-688		62
220	Verification and validation of a rapid heat transfer calculation methodology for transient melt pool solidification conditions in powder bed metal additive manufacturing. *Additive Manufacturing*, **2017**, 18, 256-268	6.1	61
219	Neutron depth profiling technique for studying aging in Li-ion batteries. *Electrochimica Acta*, **2011**, 56, 4735-4743	6.7	61
218	Observations of ferrite/austenite transformations in the heat affected zone of 2205 duplex stainless steel spot welds using time resolved X-ray diffraction. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2004**, 374, 307-321	5.3	60
217	Friction Skew-stir welding of lap joints in 5083 aluminium. *Science and Technology of Welding and Joining*, **2005**, 10, 268-280	3.7	59

216	Effect of 30T magnetic field on transformations in a novel bainitic steel. *Scripta Materialia*, **2005**, 52, 461-466	5.6	58
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214	Microstructure and texture evolution in aluminum and commercially pure titanium dissimilar welds fabricated using ultrasonic additive manufacturing. *Scripta Materialia*, **2016**, 117, 1-5	5.6	57
213	Stress and the acicular ferrite transformation. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **1992**, 156, 1-9	5.3	57
212	Joining of nickel base superalloy single crystals. *Science and Technology of Welding and Joining*, **2004**, 9, 1-12	3.7	55
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210	Diffusion of carbon in substitutionally alloyed austenite. *Journal of Materials Science Letters*, **1995**, 14, 314-316		53
209	Characterization of microstructural strengthening in the heat-affected zone of a blast-resistant naval steel. *Acta Materialia*, **2010**, 58, 5596-5609	8.4	50
208	Texture Evolution During Laser Direct Metal Deposition of Ti-6Al-4V. *Jom*, **2016**, 68, 772-777	2.1	49
207	Microstructural and micromechanical characterization of IN718 theta shaped specimens built with electron beam melting. *Acta Materialia*, **2016**, 108, 161-175	8.4	47
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180	Asymmetric Cracking in Mar-M247 Alloy Builds During Electron Beam Powder Bed Fusion Additive Manufacturing. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2018**, 49, 5065-5079	2.3	36
179	Surface potential measurement of aged Li-ion batteries using Kelvin probe microscopy. *Journal of Power Sources*, **2011**, 196, 1508-1512	8.9	36
178	Microstructure characterisation of magnetic pulse welded AA6061-T6 by electron backscattered diffraction. *Science and Technology of Welding and Joining*, **2008**, 13, 467-471	3.7	35
177	Compositional analysis on the reverted austenite and tempered martensite in a Ti-stabilized supermartensitic stainless steel: Segregation, partitioning and carbide precipitation. *Materials and Design*, **2018**, 140, 95-105	8.1	35
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175	Atom probe compositional analysis of Co-Cr sputtered magnetic thin films. *Applied Physics Letters*, **1993**, 62, 2504-2506	3.4	34
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165	Process-Defect-Structure-Property Correlations During Laser Powder Bed Fusion of Alloy 718: Role of In Situ and Ex Situ Characterizations. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2018**, 49, 5775-5798	2.3	29
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142	Approach to qualification using E-PBF in-situ process monitoring in Ti-6Al-4V. *Additive Manufacturing*, **2019**, 28, 98-106	6.1	20
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132	Localized Changes of Stainless Steel Powder Characteristics During Selective Laser Melting Additive Manufacturing. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2019**, 50, 1582-1605	2.3	17
131	Ultrasonic additive manufacturing of 4130 steel using Ni interlayers** This article has been authored by UT-Battelle, LLC under Contract No. DE-AC05-00OR22725 with the U.S. Department of Energy. The United States Government retains and the publisher, by accepting the article for publication, acknowledges that the United States Government retains a non-exclusive, paid-up,	3.7	17
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118	Mechanical Characterization of an Additively Manufactured Inconel 718 Theta-Shaped Specimen. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2016**, 47, 971-980	2.3	14
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