Matthias Markl

List of Publications by Year
in descending order

26 papers	1,122 citations	623734 14 h-index	552781 26 g-index
26 all docs	26 docs citations	26 times ranked	992 citing authors

#	Article	IF	Citations
1	Multiscale Modeling of Powder Bed–Based Additive Manufacturing. Annual Review of Materials Research, 2016, 46, 93-123.	9.3	281
2	A coupled Cellular Automaton–Lattice Boltzmann model for grain structure simulation during additive manufacturing. Computational Materials Science, 2016, 124, 37-48.	3.0	152
3	3D multi-layer grain structure simulation of powder bed fusion additive manufacturing. Acta Materialia, 2018, 152, 119-126.	7.9	131
4	Simulating fast electron beam melting with a parallel thermal free surface lattice Boltzmann method. Computers and Mathematics With Applications, 2014, 67, 318-330.	2.7	93
5	Modeling and Simulation of Microstructure Evolution for Additive Manufacturing of Metals: A Critical Review. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 4970-4983.	2.2	79
6	Predictive Simulation of Process Windows for Powder Bed Fusion Additive Manufacturing: Influence of the Powder Bulk Density. Materials, 2017, 10, 1117.	2.9	74
7	Numerical investigations on hatching process strategies for powder-bed-based additive manufacturing using an electron beam. International Journal of Advanced Manufacturing Technology, 2015, 78, 239-247.	3.0	40
8	Predictive simulation of process windows for powder bed fusion additive manufacturing: Influence of the powder size distribution. Computers and Mathematics With Applications, 2019, 78, 2351-2359.	2.7	32
9	Powder layer deposition algorithm for additive manufacturing simulations. Powder Technology, 2018, 330, 125-136.	4.2	30
10	Electron Beam Absorption Algorithms for Electron Beam Melting Processes Simulated by a Three-Dimensional Thermal Free Surface Lattice Boltzmann Method in a Distributed and Parallel Environment. Procedia Computer Science, 2013, 18, 2127-2136.	2.0	25
11	How electron beam melting tailors the Al-sensitive microstructure and mechanical response of a novel process-adapted <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si53.svg"><mml:mrow><mml:mi>γ</mml:mi></mml:mrow></mml:math>-TiAl based alloy. Materials and Design, 2021, 212, 110187.	7.0	22
12	Multi-material model for the simulation of powder bed fusion additive manufacturing. Computational Materials Science, 2021, 194, 110415.	3.0	21
13	Isothermal crystallization kinetics of an industrial-grade Zr-based bulk metallic glass. Journal of Non-Crystalline Solids, 2021, 573, 121145.	3.1	20
14	Development of Single-Crystal Ni-Base Superalloys Based on Multi-criteria Numerical Optimization and Efficient Use of Refractory Elements. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2018, 49, 4134-4145.	2.2	18
15	Validation experiments for LBM simulations of electron beam melting. International Journal of Modern Physics C, 2014, 25, 1441009.	1.7	12
16	Modeling Laser Beam Absorption of Metal Alloys at High Temperatures for Selective Laser Melting. Advanced Engineering Materials, 2021, 23, 2100137.	3.5	12
17	S??PLE: A Software Suite to Predict Consolidation and Microstructure for Powder Bed Fusion Additive Manufacturing. Advanced Engineering Materials, 2020, 22, 1901270.	3.5	11
18	Free surface Neumann boundary condition for the advection–diffusion lattice Boltzmann method. Journal of Computational Physics, 2015, 301, 230-246.	3.8	10

#	Article	IF	Citations
19	New Grain Formation by Constitutional Undercooling Due to Remelting of Segregated Microstructures during Powder Bed Fusion. Materials, 2020, 13, 5517.	2.9	10
20	A Python extension for the massively parallel multiphysics simulation framework waLBerla. International Journal of Parallel, Emergent and Distributed Systems, 2016, 31, 529-542.	1.0	9
21	New Grain Formation Mechanisms during Powder Bed Fusion. Materials, 2021, 14, 3324.	2.9	8
22	A multivariate meltpool stability criterion for fabrication of complex geometries in electron beam powder bed fusion. Additive Manufacturing, 2021, 45, 102051.	3.0	8
23	Numerical Alloy Development for Additive Manufacturing towards Reduced Cracking Susceptibility. Crystals, 2021, 11, 902.	2.2	7
24	MultOpt++: a fast regression-based model for the development of compositions with high robustness against scatter of element concentrations. Modelling and Simulation in Materials Science and Engineering, 2019, 27, 024001.	2.0	6
25	A Novel Approach to Predict the Process-Induced Mechanical Behavior of Additively Manufactured Materials. Journal of Materials Engineering and Performance, 2021, 30, 5235-5246.	2.5	6
26	Basic Mechanism of Surface Topography Evolution in Electron Beam Based Additive Manufacturing. Materials, 2022, 15, 4754.	2.9	5