Åukasz Madej

List of Publications by Year
in descending order

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124	1,353	361045	433756
papers	citations	20	31
		h-index	g-index

136	136	136	795
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Recent development trends in metal forming. Archives of Civil and Mechanical Engineering, 2019, 19, 898-941.	1.9	102
2	A perceptive comparison of the cellular automata and Monte Carlo techniques in application to static recrystallization modeling in polycrystalline materials. Computational Materials Science, 2013, 67, 156-173.	1.4	84
3	Models and modelling for process limits in metal forming. CIRP Annals - Manufacturing Technology, 2019, 68, 775-798.	1.7	57
4	Multi scale cellular automata and finite element based model for cold deformation and annealing of a ferriticâ€“pearlitic microstructure. Computational Materials Science, 2013, 77, 172-181.	1.4	52
5	Digital Material Representation as an efficient tool for strain inhomogeneities analysis at the micro scale level. Archives of Civil and Mechanical Engineering, 2011, 11, 661-679.	1.9	50
6	Recent development in orbital forging technology. International Journal of Material Forming, 2008, 1, 387-390.	0.9	43
7	Digital/virtual microstructures in application to metals engineering â€“ A review. Archives of Civil and Mechanical Engineering, 2017, 17, 839-854.	1.9	40
8	Computer aided development of the levelling technology for flat products. CIRP Annals - Manufacturing Technology, 2011, 60, 291-294.	1.7	32
9	Numerical modeling of dual phase microstructure behavior under deformation conditions on the basis of digital material representation. Computational Materials Science, 2014, 95, 651-662.	1.4	32
10	Development of the Multi-scale Analysis Model to Simulate Strain Localization Occurring During Material Processing. Archives of Computational Methods in Engineering, 2009, 16, 287-318.	6.0	31
11	Discrete micro-scale cellular automata model for modelling phase transformation during heating of dual phase steels. Archives of Civil and Mechanical Engineering, 2014, 14, 96-103.	1.9	29
12	Optimization of Cellular Automata Model for the Heating of Dual-Phase Steel by Genetic Algorithm and Genetic Programming. Materials and Manufacturing Processes, 2015, 30, 552-562.	2.7	28
13	Experimental and numerical investigation on development of new incremental forming process. Journal of Materials Processing Technology, 2012, 212, 2200-2209.	3.1	27
14	The effects of deformation and microstructure inhomogeneities in the Accumulative Angular Drawing (AAD). Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 574, 68-74.	2.6	26
15	Perceptive comparison of mean and full field dynamic recrystallization models. Archives of Civil and Mechanical Engineering, 2016, 16, 569-589.	1.9	25
16	Microstructure and properties of the interfacial region in explosively welded and post-annealed titanium-copper sheets. Materials Characterization, 2020, 167, 110520.	1.9	25
17	Application of the Automatic Image Processing in Modeling of the Deformation Mechanisms Based on the Digital Representation of Microstructure. International Journal for Multiscale Computational Engineering, 2010, 8, 343-356.	0.8	24
18	Multiscale modelling of microstructure evolution during laminar cooling of hot rolled DP steels. Archives of Civil and Mechanical Engineering, 2010, 10, 57-67.	1.9	23

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19	Effect of number of grains and boundary conditions on digital material representation deformation under plane strain. Archives of Civil and Mechanical Engineering, 2014, 14, 360-369.	1.9	21
20	Validation and predictions of coupled finite element and cellular automata model: Influence of the degree of deformation on static recrystallization kinetics case study. Materials Chemistry and Physics, 2016, 179, 282-294.	2.0	21
21	Time and length scale issues in numerical modelling of dynamic recrystallization based on the multi space cellular automata method. Journal of Computational Science, 2016, 16, 98-113.	1.5	21
22	Modeling of the inhomogeneity of grain refinement during combined metal forming process by finite element and cellular automata methods. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 671, 204-213.	2.6	21
23	Identification of Rheological Parameters on the Basis of Various Types of Compression and Tension Tests. Steel Research International, 2005, 76, 131-137.	1.0	20
24	Development and evaluation of data transfer protocols in the fully coupled random cellular automata finite element model of dynamic recrystallization. Journal of Computational Science, 2018, 26, 66-77.	1.5	19
25	Tool for optimal design of manufacturing chain based on metal forming. CIRP Annals - Manufacturing Technology, 2008, 57, 309-312.	1.7	17
26	Multi-scale rheological model for discontinuous phenomena in materials under deformation conditions. Computational Materials Science, 2007, 38, 685-691.	1.4	16
27	Development and Validation of a Numerical Model of Rolling with Cyclic Horizontal Movement of Rolls. Steel Research International, 2010, 81, 204-209.	1.0	15
28	A parallel version of the cellular automata static recrystallization model dedicated for high performance computing platforms â€“ Development and verification. Computational Materials Science, 2020, 172, 109283.	1.4	15
29	The validation of a multiscale rheological model of discontinuous phenomena during metal rolling. Computational Materials Science, 2007, 41, 236-241.	1.4	14
30	Conventional and Multiscale Modeling of Microstructure Evolution During Laminar Cooling of DP Steel Strips. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 5835-5851.	1.1	14
31	Compositional heterogeneity in multiphase steels: Characterization and influence on local properties. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 827, 142078.	2.6	14
32	Development of the cellular automata framework dedicated for metallic materials microstructure evolution models. Archives of Civil and Mechanical Engineering, 2015, 15, 48-61.	1.9	13
33	Numerical Investigation of Influence of the Martensite Volume Fraction on DP Steels Fracture Behavior on the Basis of Digital Material Representation Model. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 5852-5865.	1.1	12
34	The development of ultrafine-grained hot rolling products using advanced thermomechanical processing. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 610, 290-296.	2.6	12
35	Multi billet extrusion technology for manufacturing bi-layered components. CIRP Annals - Manufacturing Technology, 2012, 61, 235-238.	1.7	11
36	Sensitivity Analysis of the Finite Difference 2-D Cellular Automata Model for Phase Transformation during Heating. ISIJ International, 2015, 55, 285-292.	0.6	11

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37	Numerical analysis of the influence of number of grains, FE mesh density and friction coefficient on representativeness aspects of the polycrystalline digital material representation â€“ Plane strain deformation case study. Computational Materials Science, 2015, 96, 200-213.	1.4	11
38	Constitutive modeling and inverse analysis of the flow stress evolution during high temperature compression of a new ZE20 magnesium alloy for extrusion applications. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 740-741, 174-181.	2.6	11
39	Material flow analysis in the incremetal forging technology. International Journal of Material Forming, 2010, 3, 931-934.	0.9	10
40	Sensivity Analysis of the Cellular Automata Model for Austenite-Ferrite Phase Transformation in Steels. Applied Mathematics, 2013, 04, 1531-1536.	0.1	10
41	Application of the Digital Material Representation to strain localization prediction in the two phase titanium alloys for aerospace applications. Archives of Civil and Mechanical Engineering, 2016, 16, 224-234.	1.9	10
42	Development and validation of multi scale failure model for dual phase steels. Finite Elements in Analysis and Design, 2017, 124, 7-21.	1.7	10
43	Experimental and numerical two- and three-dimensional investigation of porosity morphology of the sintered metallic material. Archives of Civil and Mechanical Engineering, 2018, 18, 1520-1534.	1.9	10
44	Development of Dynamic Recrystallization Model Based on Cellular Automata Approach. Key Engineering Materials, 0, 622-623, 617-624.	0.4	9
45	Optimised recrystallisation model using multiobjective evolutionary and genetic algorithms and k-optimality approach. Materials Science and Technology, 2016, 32, 366-374.	0.8	9
46	Simulation of metal forming â€“ Visualization of invisible phenomena in the digital era. CIRP Annals - Manufacturing Technology, 2022, 71, 599-622.	1.7	9
47	Optimal design of manufacturing chain based on forging for copper alloys, with product properties being the objective function. CIRP Annals - Manufacturing Technology, 2010, 59, 319-322.	1.7	8
48	Identification of critical strains for the random cellular automata finite element failure model based on in-situ tensile test. Mechanics of Materials, 2019, 133, 154-164.	1.7	8
49	Cellular Automata-based computational library for development of digital material representation models of heterogenous microstructures. Archives of Civil and Mechanical Engineering, 2021, 21, 1.	1.9	8
50	DEVELOPMENT OF THREE-DIMENSIONAL ADAPTIVE MESH GENERATION FOR MULTISCALE APPLICATIONS. International Journal for Multiscale Computational Engineering, 2014, 12, 257-269.	0.8	8
51	Analysis of the Stress Concentration in the Nanomultilayer Coatings Based on Digital Representation of the Structure. Archives of Metallurgy and Materials, 2011, 56, .	0.6	7
52	Application of Crystal Plasticity Model for Simulation of Polycrystalline Aluminum Sample Behavior During Plain Strain Compression Test. Archives of Metallurgy and Materials, 2013, 58, 493-496.	0.6	7
53	The effect of strain path changes on texture evolution and deformation behavior of Ti6Al4V subjected to accumulative angular drawing. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 764, 138168.	2.6	7
54	Numerical modelling of a compression test based on the 3D digital material representation of pulsed laser deposited TiN thin films. Thin Solid Films, 2019, 673, 34-43.	0.8	7

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55	Experimental and Molecular Dynamic Study of Grain Refinement and Dislocation Substructure Evolution in HSLA and IF Steels after Severe Plastic Deformation. Metals, 2020, 10, 1122.	1.0	7
56	Numerical Procedure of Three-Dimensional Reconstruction of Ferrite-Pearlite Microstructure Data from SEM/EBSD Serial Sectioning. Procedia Manufacturing, 2020, 47, 1217-1222.	1.9	7
57	System for design of the manufacturing process of connecting parts for automotive industry. Archives of Civil and Mechanical Engineering, 2008, 8, 157-165.	1.9	6
58	Digital Material Representation Model of Porous Microstructure Based on 3D Reconstruction Algorithm. Archives of Metallurgy and Materials, 2017, 62, 563-569.	0.6	6
59	Experimental in-situ verification of the unloading mechanics of dual phase steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2019, 760, 134-140.	2.6	6
60	The role of the cellular automata cell size and time step length in the microstructure evolution modelâ€"The static recrystallization case study. Journal of Computational Science, 2021, 54, 101437.	1.5	6
61	Two-dimensional HP-adaptive Algorithm for Continuous Approximations of Material Data Using Space Projection. Computer Science, 2013, 14, 97.	0.4	6
62	The Material Flow Analysis in the Modified Orbital Forging Technology. Materials Science Forum, 0, 654-656, 1622-1625.	0.3	5
63	Numerical Analysis of Influence of the Martensite Volume Fraction on Dp Steels Behavior During Plastic Deformation / Analiza Numeryczna WpÅ‚ywu UÅ‚amka Objetosci Martenzytu Na Zachowanie Stali Dp Podczas OdkształcenIa Plastycznego. Archives of Metallurgy and Materials, 2013, 58, 211-215.	0.6	5
64	Development of the Modified Cellular Automata Sphere Growth Model for Creation of the Digital Material Representations. Key Engineering Materials, 0, 611-612, 489-496.	0.4	5
65	Validation of Cellular Automata Model of Dynamic Recrystallization. Key Engineering Materials, 2015, 651-653, 581-586.	0.4	5
66	Development of the multi-scale model of cold rolling based on physical and numerical investigation of ferriticâ€"pearlitic steels. Archives of Civil and Mechanical Engineering, 2015, 15, 885-896.	1.9	5
67	Evaluation of pulsed laser deposited thin films properties on the basis of the nanoindentation test. Procedia Engineering, 2017, 207, 2191-2196.	1.2	5
68	Scaling Scientific Cellular Automata Microstructure Evolution Model of Static Recrystallization toward Practical Industrial Calculations. Materials, 2021, 14, 4082.	1.3	5
69	Non-uniform Grain Boundary Migration During Static Recrystallization: A Cellular Automaton Study. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2022, 53, 1630-1644.	1.1	5
70	Employing an Adaptive Projection-based Interpolation to Prepare Discontinuous 3D Material Data for Finite Element Analysis. Procedia Computer Science, 2013, 18, 1535-1544.	1.2	4
71	Physical and numerical modelling of backward extrusion of Mg alloy with Al coating. CIRP Annals - Manufacturing Technology, 2015, 64, 253-256.	1.7	4
72	Numerical and Experimental Investigation of the Innovatory Incremental-Forming Process Dedicated to the Aerospace Industry. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2016, 47, 5522-5533.	1.1	4

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73	Perceptive Review of Ferrous Micro/Macro Material Models for Thermo-Mechanical Processing Applications. Steel Research International, 2017, 88, 1700193.	1.0	4
74	Complex Hybrid Numerical Model in Application to Failure Modelling in Multiphase Materials. Archives of Computational Methods in Engineering, 2017, 24, 869-890.	6.0	4
75	Development of extrusion technology for magnesium alloy ZE20. Procedia Engineering, 2017, 207, 389-394.	1.2	4
76	Considering influence of microstructure morphology of epoxy/glass composite on its behavior under deformation conditionsâ€"digital material representation case study. Archives of Civil and Mechanical Engineering, 2019, 19, 1304-1315.	1.9	4
77	Criterion for microcrack resistance of multi-phase steels based on property gradient maps. CIRP Annals - Manufacturing Technology, 2021, 70, 243-246.	1.7	4
78	Numerical Modelling of Fracture Based on Coupled Cellular Automata Finite Element Approach. Lecture Notes in Computer Science, 2014, , 156-165.	1.0	3
79	Adaptive Projectionâ€Based Interpolation as a Preâ€Processing Tool in the Finite Element Workflow for Elasticity Simulations of the Dual Phase Microstructures. Steel Research International, 2014, 85, 1109-1119.	1.0	3
80	Fracture modeling in dual-phase steel grades based on the random cellular automata finite element approach. Simulation, 2016, 92, 195-207.	1.1	3
81	Digital material representation concept applied to investigation of local inhomogeneities during manufacturing of magnesium components for automotive applications. International Journal of Materials Research, 2017, 108, 3-11.	0.1	3
82	Complex Modelling Platform based on Digital Material Representation. , 2007, , 403-410.		3
83	Influence of the roll leveler setup parameters on the quality of high-strength steel leveling operation. International Journal of Advanced Manufacturing Technology, 2022, 120, 1203-1217.	1.5	3
84	Evaluation of capabilities of the nanoindentation test in the determination of flow stress characteristics of the matrix material in porous sinters. Archives of Civil and Mechanical Engineering, 2022, 22, 1.	1.9	3
85	Crack Investigation of the Multilayer TiN/Ti Coatings during the Nanoindentation Test. Key Engineering Materials, 2012, 504-506, 1293-1298.	0.4	2
86	Numerical Modelling of Explosive Welding on the Basis of the Coupled Eulerian Lagrangian Approach. Key Engineering Materials, 2015, 651-653, 1415-1420.	0.4	2
87	Modeling of grain refinement and mechanical response of microalloyed steel wires severely deformed by combined forming process. International Journal of Advanced Manufacturing Technology, 2017, 89, 1559-1574.	1.5	2
88	Forming of bioabsorbable clips using magnesium alloy strips with enhanced characteristics. CIRP Annals - Manufacturing Technology, 2020, 69, 257-260.	1.7	2
89	Application of systematic scanning and variance analysis method to evaluation of pores arrangement in sintered steel. Measurement: Journal of the International Measurement Confederation, 2021, 168, 108325.	2.5	2
90	Through scale material flow investigation in novel incremental bulk forming process. Journal of Materials Processing Technology, 2021, 287, 116487.	3.1	2

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91	Parallelization of the Monte Carlo Static Recrystallization Model. Lecture Notes in Computer Science, 2014, , 445-458.	1.0	2
92	Correlating the microstructural heterogeneity with local formability of coldâ€rolled DP and CP steels through hardness gradients. Steel Research International, 0, , .	1.0	2
93	Multi-scale Finite Element Cellular Automata Simulation of Multi-step Cold Forging Operations. Steel Research International, 2007, 78, 771-776.	1.0	1
94	Numerical Analysis of the Microstructure and Mechanical Properties Evolution during Equal Channel Angular Pressing. Materials Science Forum, 2010, 638-642, 1940-1945.	0.3	1
95	Numerical modeling of fracture during nanoindentation of the TiN coatings obtained with the PLD process. Bulletin of the Polish Academy of Sciences: Technical Sciences, 2013, 61, 973-978.	0.8	1
96	Cellular Automata Finite Element Approach for Modelling Microstructure Evolution under Thermo-Mechanical Processing Conditions. Lecture Notes in Computer Science, 2014, , 197-207.	1.0	1
97	Numerical model of the nanoindentation test based on the digital material representation of the Ti/TiN multilayers. Materials Science-Poland, 2015, 33, 348-355.	0.4	1
98	Increase Model Predictive Capabilities by Multiscale Modeling. , 2015, , 209-253.		1
99	Modelling of the cellular automata space deformation within the RCAFE framework. AIP Conference Proceedings, 2016, , .	0.3	1
100	Numerical and experimental microscale analysis of the incremental forming process. AIP Conference Proceedings, 2017, , .	0.3	1
101	Discrete modelling techniques in application to generation of 3D synthetic microstructures of porous metallic materials. Procedia Engineering, 2017, 207, 1206-1211.	1.2	1
102	Evaluation of code parallelization solutions in the static recrystallization cellular automata model. Procedia Manufacturing, 2018, 15, 1879-1885.	1.9	1
103	Experimental and numerical investigation of the rolling process of HSLA steel. AIP Conference Proceedings, 2019, , .	0.3	1
104	Development of communication mechanism for the fully coupled multiscale model of 3D compression test. SN Applied Sciences, 2020, 2, 1.	1.5	1
105	Numerical Study on the Dependency of Microstructure Morphologies of Pulsed Laser Deposited TiN Thin Films and the Strain Heterogeneities during Mechanical Testing. Materials, 2021, 14, 1705.	1.3	1
106	Experimental and Numerical Study of the Effects of the Reversal Hot Rolling Conditions on the Recrystallization Behavior of Austenite Model Alloys. Metals, 2021, 11, 26.	1.0	1
107	The role of neighborhood density in the random cellular automata model of grain growth. Computer Methods in Materials Science, 2021, 21, .	0.2	1
108	Capturing Local Material Heterogeneities in Numerical Modelling of Microstructure Evolution. Journal of Machine Engineering, 2021, , .	0.9	1

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109	Hybrid System Supporting Flexible Design of Flat Rolling Production Processes in Collaborative Environment. Advanced Concurrent Engineering, 2009, , 61-69.	0.2	1
110	Numerical Simulations of Hypoeutectoid Steels under Loading Conditions, Based on Image Processing and Digital Material Representation. Lecture Notes in Computer Science, 2010, , 221-230.	1.0	1
111	VALIDATION OF THE DUAL-PHASE STEEL FAILURE MODEL AT THE MICROSCALE. International Journal for Multiscale Computational Engineering, 2017, 15, 443-458.	0.8	1
112	Sphere packing algorithm for the generation of digital models of polycrystalline microstructures with heterogeneous grain sizes. Computer Methods in Materials Science, 2020, 20, 24-32.	0.2	1
113	Metal forming driven surface engineering of thin profile wires for high precision industrial filtration screens. CIRP Annals - Manufacturing Technology, 2022, 71, 265-268.	1.7	1
114	Multi Scale Modeling Of Phenomena Caused By Changes Of The Deformation Path In Materials Forming. AIP Conference Proceedings, 2007, , .	0.3	0
115	Comparison of the Strain Distribution Obtained from Multi Scale and Conventional Approaches to Modelling Extrusion. Solid State Phenomena, 2007, 129, 25-30.	0.3	0
116	Numerical simulation of the strain inhomogeneities during plain strain compression on the basis of the digital material representation. International Journal of Material Forming, 2010, 3, 865-868.	0.9	0
117	Modelling of the Microstructure Evolution Using Cellular Automata Framework and WorkFlow Approach. Key Engineering Materials, 2014, 611-612, 497-504.	0.4	0
118	Numerical Modelling of Manufacturing of Lightweight Components â€“ Selected Issues. Procedia CIRP, 2014, 18, 232-237.	1.0	0
119	Physical and Numerical Simulation of Cold Rolling and Heating during Continuous Annealing of DP Steel Strips. Materials Science Forum, 0, 854, 146-151.	0.3	0
120	Evaluation of Local Material Flow during Complex Deformation Conditions on the Basis of Multi Scale Analysis. Key Engineering Materials, 2016, 682, 350-355.	0.4	0
121	HYBRID FE/XFE FINITE ELEMENT MODEL FOR SIMULATION OF BRITTLE-DUCTILE FRACTURES IN DUAL-PHASE STEEL GRADES.. , 2016, , .		0
122	Perceptive review of augmented reality applications and their outlooks in the forging industry. Computer Methods in Materials Science, 2020, 20, 72.	0.2	0
123	Severe plastic deformation by Constrained Backward Flowforming. CIRP Annals - Manufacturing Technology, 2022, , .	1.7	0
124	A repeatability study of artificial neural network predictions in flow stress model development for a magnesium alloy. Computer Methods in Materials Science, 2021, 21, .	0.2	0