

Daniel Balint

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/9057005/publications.pdf>

Version: 2024-02-01

133
papers

3,648
citations

117571

34
h-index

155592

55
g-index

138
all docs

138
docs citations

138
times ranked

2183
citing authors

#	ARTICLE	IF	CITATIONS
1	Investigation of deformation and failure features in hot stamping of AA6082: Experimentation and modelling. <i>International Journal of Machine Tools and Manufacture</i> , 2012, 53, 27-38.	6.2	247
2	An analytical model of rumpling in thermal barrier coatings. <i>Journal of the Mechanics and Physics of Solids</i> , 2005, 53, 949-973.	2.3	172
3	Numerical study of the solution heat treatment, forming, and in-die quenching (HFQ) process on AA5754. <i>International Journal of Machine Tools and Manufacture</i> , 2014, 87, 39-48.	6.2	155
4	Formability and failure mechanisms of AA2024 under hot forming conditions. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2011, 528, 2648-2656.	2.6	133
5	Discrete dislocation plasticity analysis of the grain size dependence of the flow strength of polycrystals. <i>International Journal of Plasticity</i> , 2008, 24, 2149-2172.	4.1	104
6	A unified constitutive model for asymmetric tension and compression creep-ageing behaviour of naturally aged Al-Cu-Li alloy. <i>International Journal of Plasticity</i> , 2017, 89, 130-149.	4.1	100
7	Size effects in uniaxial deformation of single and polycrystals: a discrete dislocation plasticity analysis. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2006, 14, 409-422.	0.8	95
8	Slip transfer across phase boundaries in dual phase titanium alloys and the effect on strain rate sensitivity. <i>International Journal of Plasticity</i> , 2018, 104, 23-38.	4.1	95
9	Modelling of dominant softening mechanisms for Ti-6Al-4V in steady state hot forming conditions. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2013, 559, 352-358.	2.6	80
10	Discrete dislocation plasticity analysis of the wedge indentation of films. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 2281-2303.	2.3	79
11	The development of continuum damage mechanics-based theories for predicting forming limit diagrams for hot stamping applications. <i>International Journal of Damage Mechanics</i> , 2014, 23, 684-701.	2.4	75
12	Undulation instability of a compressed elastic film on a nonlinear creeping substrate. <i>Acta Materialia</i> , 2003, 51, 3965-3983.	3.8	74
13	Investigation of slip transfer across HCP grain boundaries with application to cold dwell facet fatigue. <i>Acta Materialia</i> , 2017, 127, 43-53.	3.8	74
14	A controlled Poisson Voronoi tessellation for grain and cohesive boundary generation applied to crystal plasticity analysis. <i>Computational Materials Science</i> , 2012, 64, 84-89.	1.4	70
15	An efficient closed-form method for determining interfacial heat transfer coefficient in metal forming. <i>International Journal of Machine Tools and Manufacture</i> , 2012, 56, 102-110.	6.2	69
16	The mechanisms governing the activation of dislocation sources in aluminum at different strain rates. <i>Journal of the Mechanics and Physics of Solids</i> , 2015, 84, 273-292.	2.3	65
17	The effect of temperature on the elastic precursor decay in shock loaded FCC aluminium and BCC iron. <i>International Journal of Plasticity</i> , 2017, 96, 135-155.	4.1	65
18	A discrete dislocation plasticity study of the micro-cantilever size effect. <i>Acta Materialia</i> , 2015, 88, 271-282.	3.8	63

#	ARTICLE	IF	CITATIONS
19	Attenuation of the Dynamic Yield Point of Shocked Aluminum Using Elastodynamic Simulations of Dislocation Dynamics. <i>Physical Review Letters</i> , 2015, 114, 174301.	2.9	62
20	Discrete dislocation and crystal plasticity analyses of load shedding in polycrystalline titanium alloys. <i>International Journal of Plasticity</i> , 2016, 87, 15-31.	4.1	61
21	Microstructural effects on strain rate and dwell sensitivity in dual-phase titanium alloys. <i>Acta Materialia</i> , 2019, 162, 136-148.	3.8	61
22	Dwell fatigue in two Ti alloys: An integrated crystal plasticity and discrete dislocation study. <i>Journal of the Mechanics and Physics of Solids</i> , 2016, 96, 411-427.	2.3	59
23	In situ stable crack growth at the micron scale. <i>Nature Communications</i> , 2017, 8, 108.	5.8	51
24	Influence of bond coat thickness on the cyclic rumpling of thermally grown oxides. <i>Acta Materialia</i> , 2006, 54, 1815-1820.	3.8	50
25	An integrated scheme for crystal plasticity analysis: Virtual grain structure generation. <i>Computational Materials Science</i> , 2011, 50, 2854-2864.	1.4	49
26	A dynamic discrete dislocation plasticity method for the simulation of plastic relaxation under shock loading. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2013, 469, 20130141.	1.0	48
27	A discrete dislocation plasticity analysis of grain-size strengthening. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2005, 400-401, 186-190.	2.6	47
28	An investigation into the forging of Bi-metal gears. <i>Journal of Materials Processing Technology</i> , 2014, 214, 2248-2260.	3.1	42
29	Rate sensitivity in discrete dislocation plasticity in hexagonal close-packed crystals. <i>Acta Materialia</i> , 2016, 107, 17-26.	3.8	42
30	Controlled Poisson Voronoi tessellation for virtual grain structure generation: a statistical evaluation. <i>Philosophical Magazine</i> , 2011, 91, 4555-4573.	0.7	41
31	Discrete dislocation, crystal plasticity and experimental studies of fatigue crack nucleation in single-crystal nickel. <i>International Journal of Plasticity</i> , 2020, 126, 102615.	4.1	39
32	The dislocation configurational energy density in discrete dislocation plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2019, 129, 39-60.	2.3	38
33	Clarification of the effect of temperature and strain rate on workpiece deformation behaviour in metal forming processes. <i>International Journal of Machine Tools and Manufacture</i> , 2021, 171, 103815.	6.2	37
34	Mechanistic basis of temperature-dependent dwell fatigue in titanium alloys. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 107, 185-203.	2.3	35
35	A phase field model of pressure-assisted sintering. <i>Journal of the European Ceramic Society</i> , 2019, 39, 173-182.	2.8	35
36	A study on central crack formation in cross wedge rolling. <i>Journal of Materials Processing Technology</i> , 2020, 279, 116549.	3.1	35

#	ARTICLE	IF	CITATIONS
37	Anisotropic TGO rumpling in EB-PVD thermal barrier coatings under in-phase thermomechanical loading. <i>Acta Materialia</i> , 2011, 59, 2544-2555.	3.8	33
38	Instabilities of High Speed Dislocations. <i>Physical Review Letters</i> , 2018, 121, 145502.	2.9	33
39	An inverse method to determine the dispersion curves of periodic structures based on wave superposition. <i>Journal of Sound and Vibration</i> , 2015, 350, 41-72.	2.1	32
40	Experimental characterisation of the effects of thermal conditions on austenite formation for hot stamping of boron steel. <i>Journal of Materials Processing Technology</i> , 2016, 231, 254-264.	3.1	32
41	Experimental and numerical investigation of localized thinning in hydroforming of micro-tubes. <i>European Journal of Mechanics, A/Solids</i> , 2012, 31, 67-76.	2.1	31
42	The effects of regularity on the geometrical properties of Voronoi tessellations. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2014, 406, 42-58.	1.2	31
43	Modelling of austenite formation during heating in boron steel hot stamping processes. <i>Journal of Materials Processing Technology</i> , 2016, 237, 394-401.	3.1	31
44	Advancing mechanical recycling of multilayer plastics through finite element modelling and environmental policy. <i>Resources, Conservation and Recycling</i> , 2021, 166, 105371.	5.3	27
45	Microstructure evolution in metal forming processes. , 2012, , .		26
46	Three-dimensional virtual grain structure generation with grain size control. <i>Mechanics of Materials</i> , 2012, 55, 89-101.	1.7	24
47	First-principles calculation of the elastic dipole tensor of a point defect: Application to hydrogen in α -zirconium. <i>Physical Review B</i> , 2016, 94, .	1.1	24
48	A new hardness formula incorporating the effect of source density on indentation response: A discrete dislocation plasticity analysis. <i>Surface and Coatings Technology</i> , 2019, 374, 763-773.	2.2	23
49	Mode II Edge Delamination of Compressed Thin Films. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2001, 68, 725-730.	1.1	22
50	Investigation of the effects of thermal gradients present in Gleeble high-temperature tensile tests on the strain state for free cutting steel. <i>Journal of Strain Analysis for Engineering Design</i> , 2014, 49, 521-532.	1.0	22
51	On the origin of microstructural discontinuities in sliding contacts: A discrete dislocation plasticity analysis. <i>International Journal of Plasticity</i> , 2021, 138, 102942.	4.1	20
52	Characterization of EB-PVD yttrium-stabilised zirconia by nanoindentation. <i>Surface and Coatings Technology</i> , 2009, 203, 1743-1747.	2.2	19
53	A new parameter for modelling three-dimensional damage evolution validated by synchrotron tomography. <i>Acta Materialia</i> , 2013, 61, 7616-7623.	3.8	19
54	Effects of geometry and boundary constraint on the stiffness and negative Poisson's ratio behaviour of auxetic metamaterials under quasi-static and impact loading. <i>International Journal of Impact Engineering</i> , 2022, 169, 104315.	2.4	19

#	ARTICLE	IF	CITATIONS
55	Discrete dislocation plasticity analysis of crack-tip fields in polycrystalline materials. Philosophical Magazine, 2005, 85, 3047-3071.	0.7	17
56	Size effects in single asperity frictional contacts. Modelling and Simulation in Materials Science and Engineering, 2007, 15, S97-S108.	0.8	17
57	Predicting Effect of Temperature, Strain Rate and Strain Path Changes on Forming Limit of Lightweight Sheet Metal Alloys. Procedia Engineering, 2014, 81, 736-741.	1.2	17
58	A parametric study of the mechanical and dispersion properties of cubic lattice structures. International Journal of Solids and Structures, 2016, 91, 55-71.	1.3	17
59	Experimental and Numerical Studies on the Formability of Materials in Hot Stamping and Cold Die Quenching Processes. AIP Conference Proceedings, 2011, , .	0.3	16
60	The Role of Homogeneous Nucleation in Planar Dynamic Discrete Dislocation Plasticity. Journal of Applied Mechanics, Transactions ASME, 2015, 82, .	1.1	16
61	Elastodynamic image forces on dislocations. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150433.	1.0	16
62	An inverse method for extracting the mechanical properties of the constituent materials of a multilayer from nanoindentation data. Computational Materials Science, 2013, 68, 384-390.	1.4	15
63	Materials Modelling for Selective Heating and Press Hardening of Boron Steel Panels with Graded Microstructures. Procedia Engineering, 2014, 81, 1675-1681.	1.2	14
64	Measuring the band structures of periodic beams using the wave superposition method. Journal of Sound and Vibration, 2016, 382, 158-178.	2.1	14
65	Prediction of delamination in multilayer artist paints under low amplitude fatigue loading. Engineering Fracture Mechanics, 2013, 112-113, 41-57.	2.0	13
66	A Dynamic Discrete Dislocation Plasticity study of elastodynamic shielding of stationary cracks. Journal of the Mechanics and Physics of Solids, 2017, 98, 1-11.	2.3	13
67	In situ microtensile testing and X-ray microtomography-based finite element modelling of open-cell metal foam struts and sandwich panels. Journal of Strain Analysis for Engineering Design, 2014, 49, 592-606.	1.0	12
68	A method of coupling discrete dislocation plasticity to the crystal plasticity finite element method. Modelling and Simulation in Materials Science and Engineering, 2016, 24, 045007.	0.8	12
69	Discrete crack dynamics: A planar model of crack propagation and crack-inclusion interactions in brittle materials. International Journal of Solids and Structures, 2018, 152-153, 12-27.	1.3	12
70	Deformation behaviour of [001] oriented MgO using combined in-situ nano-indentation and micro-Laue diffraction. Acta Materialia, 2018, 145, 516-531.	3.8	12
71	A CRYSTAL PLASTICITY STUDY OF THE NECKING OF MICRO-FILMS UNDER TENSION. Journal of Multiscale Modeling, 2009, 01, 331-345.	1.0	11
72	A virtual crystal plasticity simulation tool for micro-forming. Procedia Engineering, 2009, 1, 75-78.	1.2	11

#	ARTICLE	IF	CITATIONS
73	Cohesive zone representation and junction partitioning for crystal plasticity analyses. <i>International Journal for Numerical Methods in Engineering</i> , 2012, 92, 715-733.	1.5	11
74	Fracture toughness of bone at the microscale. <i>Acta Biomaterialia</i> , 2021, 121, 475-483.	4.1	11
75	How would the deformation bands affect recrystallization in pure aluminium?. <i>Materials and Design</i> , 2021, 209, 109960.	3.3	11
76	Dynamic Discrete Dislocation Plasticity. <i>Advances in Applied Mechanics</i> , 2014, , 93-224.	1.4	10
77	A new design of friction test rig and determination of friction coefficient when warm forming an aluminium alloy. <i>Procedia Engineering</i> , 2017, 207, 2274-2279.	1.2	10
78	An analysis of the tooth stress distribution of forged bi-metallic gears. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 2018, 232, 124-139.	1.1	10
79	Plasticity of zirconium hydrides: a coupled edge and screw discrete dislocation model. <i>Journal of the Mechanics and Physics of Solids</i> , 2021, 147, 104219.	2.3	10
80	A fast efficient multi-scale approach to modelling the development of hydride microstructures in zirconium alloys. <i>Computational Materials Science</i> , 2021, 190, 110279.	1.4	10
81	Dislocation modelling of the plastic relaxation and thermal ratchetting induced by zirconium hydride precipitation. <i>Journal of the Mechanics and Physics of Solids</i> , 2022, 167, 104988.	2.3	10
82	The reliability of defect sentencing in manual ultrasonic inspection. <i>NDT and E International</i> , 2012, 51, 101-110.	1.7	9
83	The injection of a screw dislocation into a crystal: Atomistics vs. continuum elastodynamics. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 98, 366-389.	2.3	9
84	Embrittlement of an elasto-plastic medium by an inclusion. <i>International Journal of Fracture</i> , 2019, 216, 87-100.	1.1	9
85	Discrete Dislocation Plasticity Modeling of Hydrides in Zirconium under Thermal Cycling. <i>MRS Advances</i> , 2017, 2, 3353-3358.	0.5	8
86	Quantifying damage accumulation during the hot deformation of free-cutting steels using ultra-fast synchrotron tomography. <i>IOP Conference Series: Materials Science and Engineering</i> , 2012, 33, 012038.	0.3	7
87	Test-piece design for experimental and numerical evaluation of damage in relation to spatial triaxial stress inversion. <i>International Journal of Damage Mechanics</i> , 2017, 26, 588-607.	2.4	7
88	A discrete crack dynamics model of toughening in brittle polycrystalline material by crack deflection. <i>Engineering Fracture Mechanics</i> , 2019, 214, 95-111.	2.0	7
89	Effect of strain rate on tensile mechanical properties of high-purity niobium single crystals for SRF applications. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2020, 797, 140258.	2.6	7
90	A numerical investigation of interfacial and channelling crack growth rates under low-cycle fatigue in bi-layer materials relevant to cultural heritage. <i>Journal of Cultural Heritage</i> , 2021, 49, 70-78.	1.5	7

#	ARTICLE	IF	CITATIONS
91	Hybrid forming processes for production of lightweight high strength automotive panel parts. International Heat Treatment and Surface Engineering, 2010, 4, 160-165.	0.2	6
92	AUTOMATED CALIBRATION OF A VOID CLOSURE MODEL FOR HIGH-TEMPERATURE DEFORMATION. Journal of Multiscale Modeling, 2011, 03, 79-90.	1.0	6
93	Cracking in paintings due to relative humidity cycles. Procedia Structural Integrity, 2018, 13, 379-384.	0.3	6
94	On the Origin of Plastic Deformation and Surface Evolution in Nano-Fretting: A Discrete Dislocation Plasticity Analysis. Materials, 2021, 14, 6511.	1.3	6
95	MODELING OF FAILURE FEATURES FOR TiN COATINGS WITH DIFFERENT SUBSTRATE MATERIALS. Journal of Multiscale Modeling, 2011, 03, 49-64.	1.0	5
96	A new experimental method for identifying the conditions necessary for diffusion bonding in free cutting steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 586, 25-30.	2.6	5
97	Numerical Investigation on the Hot Forming and Cold-Die Quenching of an Aluminium-Magnesium Alloy into a Complex Component. Materials Science Forum, 2013, 765, 368-372.	0.3	5
98	Concept Validation for Selective Heating and Press Hardening of Automotive Safety Components with Tailored Properties. Key Engineering Materials, 0, 622-623, 1124-1131.	0.4	5
99	A unifying scaling for the Bauschinger effect in highly confined thin films: a discrete dislocation plasticity study. Modelling and Simulation in Materials Science and Engineering, 2017, 25, 054003.	0.8	5
100	Reconstruction of historical temperature and relative humidity cycles within Knole House, Kent. Journal of Cultural Heritage, 2019, 39, 212-220.	1.5	5
101	Crystal Plasticity Finite Element Process Modeling for Hydro-forming Micro-tubular Components. Chinese Journal of Mechanical Engineering (English Edition), 2011, 24, 78.	1.9	5
102	Solution Heat Treatment, Forming and In-Die Quenching of a Commercial Sheet Magnesium Alloy into a Complex-Shaped Component: Experimentation and FE Simulation. Key Engineering Materials, 0, 622-623, 596-602.	0.4	4
103	Plastic relaxation and solute segregation to $\hat{\gamma}^2$ -Nb second phase particles in Zr-Nb alloys: A discrete dislocation plasticity study. Journal of the Mechanics and Physics of Solids, 2021, 156, 104581.	2.3	4
104	Micromechanical Modelling of Void Healing. Advanced Structured Materials, 2013, , 1-8.	0.3	4
105	Development and determination of unified viscoplastic constitutive equations for predicting microstructure evolution in hot forming processes. International Journal of Mechatronics and Manufacturing Systems, 2011, 4, 387.	0.1	3
106	Investigation of FE model size definition for surface coating application. Chinese Journal of Mechanical Engineering (English Edition), 2012, 25, 860-867.	1.9	3
107	The Cohesive Zone Model Applied to Blunt Cracks. , 2014, 3, 313-317.		3
108	In-situ Micro-tensile Testing and X-ray Micro-tomography based FE Modeling of Open-cell Metal Foam Struts and Sandwich Panels. , 2014, 4, 197-202.		3

#	ARTICLE	IF	CITATIONS
109	An investigation of the mechanical fatigue behavior of low thermal expansion lattice structures. International Journal of Fatigue, 2015, 81, 238-248.	2.8	3
110	An investigation of the mechanical behavior of three-dimensional low expansion lattice structures fabricated via laser printing. Composite Structures, 2018, 206, 80-94.	3.1	3
111	The effect of strain rate asymmetry on the Bauschinger effect: A discrete dislocation plasticity analysis. Journal of Materials Research and Technology, 2022, 16, 1904-1918.	2.6	3
112	Scale effects in necking. EPJ Web of Conferences, 2012, 26, 01008.	0.1	2
113	The effect of morphological imperfections on damage in 3D FE analysis of open-cell metal foam core sandwich panels. International Journal of Mechanical Sciences, 2013, 75, 377-387.	3.6	2
114	Theoretical Analysis and Computational Simulation of Advanced Structured Materials. Advances in Condensed Matter Physics, 2014, 2014, 1-2.	0.4	2
115	A Novel Forming Process for Powder Metallurgy of Superalloys. Key Engineering Materials, 0, 622-623, 833-839.	0.4	2
116	A study on the effect of stress state on damage evolution in hot deformation of free cutting steels using double notched bars. Philosophical Magazine, 2016, 96, 2176-2203.	0.7	2
117	Optimal shunt parameters for maximising wave attenuation with periodic piezoelectric patches. Journal of Intelligent Material Systems and Structures, 2017, 28, 108-123.	1.4	2
118	Development of similarity-based scaling criteria for creep age forming of large/extra-large panels. International Journal of Advanced Manufacturing Technology, 2019, 101, 1537-1551.	1.5	2
119	Deformation and fracture of zirconium hydrides during the plastic straining of Zr-4. MRS Advances, 2020, 5, 559-567.	0.5	2
120	Investigating spatio-temporal deformation in single crystal Ni-based superalloys using in-situ diffraction experiments and modelling. Materialia, 2020, 9, 100635.	1.3	2
121	QUANTIFYING AND IMPROVING THE RELIABILITY OF NDE THROUGH MODELING MANUAL ULTRASONIC INSPECTIONS. , 2010, , .		1
122	An investigation of cutting resistance in stretched polymer films. Procedia Structural Integrity, 2016, 2, 190-196.	0.3	1
123	Temperature-dependent plastic hysteresis in highly confined polycrystalline Nb films. Modelling and Simulation in Materials Science and Engineering, 2018, 26, 025005.	0.8	1
124	On the origin of plasticity-induced microstructure change under sliding contacts. Friction, 0, , .	3.4	1
125	A Multiscale NDT System for Damage Detection in Thermal Barrier Coatings. , 2009, , .		0
126	Review of Materials and Process Modeling Techniques for Creep Age Forming. Advanced Materials Research, 2010, 154-155, 1439-1445.	0.3	0

#	ARTICLE	IF	CITATIONS
127	Determining unified constitutive equations for modelling hot forming of steel. , 2012, , 180-209.		0
128	Triaxiality Effect on Material Damage Evolution in Hot Rolling. Key Engineering Materials, 2014, 622-623, 1041-1048.	0.4	0
129	Methodology for Modelling Diffusion Bonding in Powder Forging. Key Engineering Materials, 0, 716, 817-823.	0.4	0
130	Analysis of an as-cast high Si slab to elucidate fundamental causes of the fracture mechanism: Clinking. Procedia Structural Integrity, 2018, 13, 1447-1452.	0.3	0
131	On the use of HCP and FCC RVE structures in the simulation of powder compaction. Journal of Strain Analysis for Engineering Design, 2018, 53, 338-352.	1.0	0
132	Toughness measurements of a Cr martensitic high alloy steel susceptible to clinking. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, 2019, 233, 63-72.	0.7	0
133	An Investigation of the Mechanical Properties of Open Cell Aluminium Foam Struts: Microtensile Testing and Modelling. Advanced Structured Materials, 2013, , 53-63.	0.3	0