

# Noel O'Dowd

## List of Publications by Year in descending order

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133  
papers

4,801  
citations

159358

30  
h-index

98622

67  
g-index

135  
all docs

135  
docs citations

135  
times ranked

1917  
citing authors

#	ARTICLE	IF	CITATIONS
1	Family of crack-tip fields characterized by a triaxiality parameterâ€”I. Structure of fields. Journal of the Mechanics and Physics of Solids, 1991, 39, 989-1015.	2.3	955
2	Family of crack-tip fields characterized by a triaxiality parameterâ€”II. Fracture applications. Journal of the Mechanics and Physics of Solids, 1992, 40, 939-963.	2.3	657
3	Gradient-dependent deformation of two-phase single crystals. Journal of the Mechanics and Physics of Solids, 2000, 48, 2333-2361.	2.3	297
4	Mixed-Mode Fracture Toughness of Ceramic Materials. Journal of the American Ceramic Society, 1990, 73, 1257-1267.	1.9	195
5	Finite element implementation of a generalised non-local rate-dependent crystallographic formulation for finite strains. International Journal of Plasticity, 2001, 17, 601-640.	4.1	172
6	Applications of two parameter approaches in elastic-plastic fracture mechanics. Engineering Fracture Mechanics, 1995, 52, 445-465.	2.0	123
7	Creep crack growth prediction using a damage based approach. International Journal of Pressure Vessels and Piping, 2003, 80, 573-583.	1.2	122
8	Fracture mechanics analysis of a crack in a residual stress field. International Journal of Fracture, 2000, 106, 195-216.	1.1	121
9	Test geometries for measuring interfacial fracture toughness. International Journal of Solids and Structures, 1992, 29, 571-589.	1.3	112
10	Use of scaling functions to determine mechanical properties of thin coatings from microindentation tests. International Journal of Solids and Structures, 2001, 38, 335-351.	1.3	105
11	Theoretical and numerical modelling of creep crack growth in a carbonâ€”manganese steel. Engineering Fracture Mechanics, 2006, 73, 1158-1175.	2.0	96
12	A multi-scale crystal plasticity model for cyclic plasticity and low-cycle fatigue in a precipitate-strengthened steel at elevated temperature. Journal of the Mechanics and Physics of Solids, 2017, 101, 44-62.	2.3	80
13	Fracture toughness of alumina-niobium interfaces: Experiments and analyses. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1992, 66, 1037-1064.	0.8	79
14	Development of life assessment procedures for power plant headers operated under flexible loading scenarios. International Journal of Fatigue, 2013, 49, 50-61.	2.8	66
15	On the evolution of lattice deformation in austenitic stainless steelsâ€”The role of work hardening at finite strains. Journal of the Mechanics and Physics of Solids, 2011, 59, 2421-2441.	2.3	65
16	Multiscale modelling of mechanical response in a martensitic steel: A micromechanical and length-scale-dependent framework for precipitate hardening. Acta Materialia, 2014, 80, 445-456.	3.8	65
17	Thermo-mechanical modelling of a single-bead-on-plate weld using the finite element method. International Journal of Pressure Vessels and Piping, 2009, 86, 110-121.	1.2	63
18	A coupled kinetic-constitutive approach to the study of high temperature crack initiation in single crystal nickel-base superalloysâ€”I. Journal of the Mechanics and Physics of Solids, 2006, 54, 288-309.	2.3	61

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19	Numerical study of sliding wear caused by a loaded pin on a rotating disc. Journal of the Mechanics and Physics of Solids, 2002, 50, 449-470.	2.3	48
20	Measurement of residual stresses in T-plate weldments. Journal of Strain Analysis for Engineering Design, 2003, 38, 349-365.	1.0	44
21	Taguchi analysis of bonded composite single-lap joints using a combined interfaceâ€“adhesive damage model. International Journal of Adhesion and Adhesives, 2013, 40, 168-178.	1.4	44
22	Weibull Stress Solutions for 2-D Cracks in elastic and Elastic-Plastic Materials. International Journal of Fracture, 1998, 89, 245-268.	1.1	43
23	Micromechanical finite element modelling of thermo-mechanical fatigue for P91 steels. International Journal of Fatigue, 2016, 87, 192-202.	2.8	43
24	Strain gradient crystal plasticity modelling of size effects in a hierarchical martensitic steel using the Voronoi tessellation method. International Journal of Plasticity, 2019, 119, 215-229.	4.1	41
25	Modelling of damage development and failure in notched-bar multiaxial creep tests. Fatigue and Fracture of Engineering Materials and Structures, 2004, 27, 283-295.	1.7	36
26	The effect of prior deformation on subsequent microplasticity and damage evolution in an austenitic stainless steel at elevated temperature. Acta Materialia, 2013, 61, 3575-3584.	3.8	36
27	Failure assessment diagram analysis of creep crack initiation in 316H stainless steel. International Journal of Pressure Vessels and Piping, 2003, 80, 541-551.	1.2	34
28	Prediction of cleavage failure probabilities using the Weibull stress. Engineering Fracture Mechanics, 2000, 67, 87-100.	2.0	33
29	Failure of bimaterial interfaces. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1990, 126, 65-93.	2.6	31
30	Time dependent large principal deformation of polymers. Journal of the Mechanics and Physics of Solids, 1995, 43, 771-792.	2.3	31
31	A micromechanics investigation of sliding wear in coated components. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2000, 456, 2387-2407.	1.0	30
32	Experimental Investigation of Constraint Effects on Creep Crack Growth. , 2002, , 143.		30
33	Thermomechanical Analysis of a Pressurized Pipe Under Plant Conditions. Journal of Pressure Vessel Technology, Transactions of the ASME, 2013, 135, .	0.4	27
34	An analytical and computational study of crack initiation under transient creep conditions. International Journal of Solids and Structures, 2007, 44, 1823-1843.	1.3	26
35	J-integral analysis of heterogeneous mismatched girth welds in clamped single-edge notched tension specimens. International Journal of Pressure Vessels and Piping, 2014, 119, 95-107.	1.2	26
36	A microscale integrated approach to measure and model fibre misalignment in fibre-reinforced composites. Composites Science and Technology, 2019, 183, 107793.	3.8	26

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37	Interpretation of creep crack initiation and growth data for weldments. <i>Engineering Fracture Mechanics</i> , 2007, 74, 882-897.	2.0	24
38	A review of the effect of prior inelastic deformation on high temperature mechanical response of engineering alloys. <i>International Journal of Pressure Vessels and Piping</i> , 2010, 87, 531-542.	1.2	24
39	High Temperature, Low Cycle Fatigue Characterization of P91 Weld and Heat Affected Zone Material. <i>Journal of Pressure Vessel Technology, Transactions of the ASME</i> , 2014, 136, .	0.4	24
40	Developing a realistic FE analysis method for the welding of a NET single-bead-on-plate test specimen. <i>Journal of Materials Processing Technology</i> , 2007, 192-193, 497-503.	3.1	23
41	Optimum design of forging dies using fuzzy logic in conjunction with the backward deformation method. <i>International Journal of Machine Tools and Manufacture</i> , 1998, 38, 981-1000.	6.2	22
42	Microscale prediction of deformation in an austenitic stainless steel under uniaxial loading. <i>European Journal of Mechanics, A/Solids</i> , 2011, 30, 748-760.	2.1	21
43	A combined computational and experimental methodology to determine the adhesion properties of stent polymer coatings. <i>Computational Materials Science</i> , 2013, 80, 104-112.	1.4	21
44	Quality prediction of ultrasonically welded joints using a hybrid machine learning model. <i>Journal of Manufacturing Processes</i> , 2021, 71, 571-579.	2.8	21
45	Microstructural Modeling of P91 Martensitic Steel Under Uniaxial Loading Conditions. <i>Journal of Pressure Vessel Technology, Transactions of the ASME</i> , 2014, 136, .	0.4	20
46	A Unified Viscoplastic Model for High Temperature Low Cycle Fatigue of Service-Aged P91 Steel. <i>Journal of Pressure Vessel Technology, Transactions of the ASME</i> , 2014, 136, .	0.4	20
47	Experimental study of hygrothermal ageing effects on failure modes of non-crimp basalt fibre-reinforced epoxy composite. <i>Composite Structures</i> , 2021, 275, 114415.	3.1	20
48	Numerical micromechanical investigation of interfacial strength parameters in a carbon fibre composite material. <i>Journal of Composite Materials</i> , 2014, 48, 749-760.	1.2	19
49	The effect of ferrite phases on the micromechanical response and crack initiation in the intercritical heat-affected zone of a welded 9Cr martensitic steel. <i>Fatigue and Fracture of Engineering Materials and Structures</i> , 2018, 41, 1245-1259.	1.7	19
50	A multiscale approach for coupled phenomena in fcc materials at high temperatures. <i>Philosophical Magazine</i> , 2003, 83, 3895-3916.	0.7	18
51	A generic approach for a linear elastic fracture mechanics analysis of components containing residual stress. <i>International Journal of Pressure Vessels and Piping</i> , 2005, 82, 797-806.	1.2	18
52	Micromechanical investigation of damage processes at composite-adhesive interfaces. <i>Composites Science and Technology</i> , 2013, 86, 61-69.	3.8	18
53	Microscale deformation of a tempered martensite ferritic steel: Modelling and experimental study of grain and sub-grain interactions. <i>Journal of the Mechanics and Physics of Solids</i> , 2016, 86, 42-52.	2.3	18
54	Analysis of failure modes for a non-crimp basalt fiber reinforced epoxy composite under flexural and interlaminar shear loading. <i>Composite Structures</i> , 2020, 245, 112317.	3.1	18

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55	Time-of-flight neutron imaging at a continuous source: Proof of principle using a scintillator CCD imaging detector. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2011, 651, 149-155.	0.7	17
56	Effects of pipe steel heterogeneity on the tensile strain capacity of a flawed pipeline girth weld. Engineering Fracture Mechanics, 2014, 115, 172-189.	2.0	17
57	Fracture Assessment Procedures for Steel Pipelines Using a Modified Reference Stress Solution. Journal of Pressure Vessel Technology, Transactions of the ASME, 2009, 131, .	0.4	15
58	Elastic-plastic analysis of cracks on bimaterial interfaces: interfaces with structure. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1993, 162, 175-192.	2.6	14
59	Study of creep relaxation under combined mechanical and residual stresses. Engineering Fracture Mechanics, 2012, 93, 132-152.	2.0	14
60	Fracture mechanics analysis of heterogeneous welds: Numerical case studies involving experimental heterogeneity patterns. Engineering Failure Analysis, 2015, 58, 336-350.	1.8	14
61	Methodology for Assessment of Surface Defects in Undermatched Pipeline Girth Welds. Journal of Pressure Vessel Technology, Transactions of the ASME, 2015, 137, .	0.4	13
62	Creep relaxation in the presence of residual stress. Engineering Fracture Mechanics, 2015, 138, 250-264.	2.0	13
63	Multiaxial cyclic viscoplasticity model for high temperature fatigue of P91 steel. Materials Science and Technology, 2014, 30, 67-74.	0.8	12
64	Fully-Plastic Strain-Based J Estimation Scheme for Circumferential Surface Cracks in Pipes Subjected to Reeling. Journal of Pressure Vessel Technology, Transactions of the ASME, 2015, 137, .	0.4	12
65	A multiscale experimentally-based finite element model to predict microstructure and damage evolution in martensitic steels. International Journal of Plasticity, 2021, 139, 102966.	4.1	12
66	Creep Crack Initiation in a Weld Steel: Effects of Residual Stress. , 2005, , 843.		11
67	Investigation of strain hardening effects under in-plane shear of unidirectional composite materials. Computational Materials Science, 2012, 64, 179-182.	1.4	10
68	Fibre Alignment and Void Assessment in Thermoplastic Carbon Fibre Reinforced Polymers Manufactured by Automated Tape Placement. Polymers, 2021, 13, 473.	2.0	10
69	Experimental study and multiscale modelling of the high temperature deformation of tempered martensite under multiaxial loading. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 737, 383-392.	2.6	9
70	Stress Intensity Factors Due to Residual Stresses in T-Plate Welds. Journal of Pressure Vessel Technology, Transactions of the ASME, 2004, 126, 432-437.	0.4	8
71	Comparison of methods for obtaining crack-tip stress distributions in an elastic-plastic material. Journal of Strain Analysis for Engineering Design, 2005, 40, 431-449.	1.0	8
72	Computational and Experimental Studies of High Temperature Crack Initiation in the Presence of Residual Stress. Journal of Pressure Vessel Technology, Transactions of the ASME, 2008, 130, .	0.4	8

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73	The Effect of Prestrain on Ductile Fracture Toughness of Reeled Pipeline Steels. Journal of Pressure Vessel Technology, Transactions of the ASME, 2011, 133, .	0.4	8
74	Prediction of prior austenite grain growth in the heat-affected zone of a martensitic steel during welding. International Journal of Pressure Vessels and Piping, 2018, 166, 94-106.	1.2	8
75	Effective bending modulus of thin ply fibre composites with uniform fibre spacing. International Journal of Solids and Structures, 2020, 196-197, 26-40.	1.3	8
76	Multiscale modelling of porous polymers using a combined finite element and D-optimal design of experiment approach. Computational Materials Science, 2011, 50, 2671-2682.	1.4	7
77	Fracture Mechanics Analysis of Heterogeneous Welds: Validation of a Weld Homogenisation Approach. , 2014, 3, 1322-1329.		7
78	J estimation and defect assessment for combined residual stress and mechanical loading. International Journal of Pressure Vessels and Piping, 2000, 77, 321-333.	1.2	6
79	Computational Modelling of High Temperature Steady State Crack Growth Using a Damage-Based Approach. , 2003, , 5.		6
80	The Role of Plasticity in the Transverse Lattice Strain Evolution of a Martensitic Steel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 5829-5833.	1.1	6
81	In-situ SEM mechanical testing of miniature bonded joints. International Journal of Adhesion and Adhesives, 2014, 50, 57-64.	1.4	6
82	Deformation Characteristics of a High Chromium, Power Plant Steel at Elevated Temperatures. , 2015, , .		6
83	Comparison of progressive damage between thermoset and thermoplastic CFRP composites under in-situ tensile loading. Journal of Composite Materials, 2021, 55, 1473-1484.	1.2	6
84	Length scale effects on the geometric softening of precipitated single crystals. European Physical Journal Special Topics, 1998, 08, Pr8-55-Pr8-61.	0.2	6
85	Determination of the mechanical properties of metallic thin films and substrates from indentation tests. , 0, .		6
86	Stress Intensity Factors Due to Residual Stresses in T-Plate Welds. , 2004, , 139.		5
87	The influence of void morphology and loading conditions on deformation and failure of porous polymers: A combined finite-element and analysis of variance study. Computational Materials Science, 2012, 64, 41-46.	1.4	4
88	Qualification of Reeled Mechanically Lined Pipes for Fatigue Service. International Journal of Offshore and Polar Engineering, 2016, 26, 296-303.	0.3	4
89	Computational modelling of the cyclic deformation of aluminium and aluminium matrix composites. Computational Materials Science, 1996, 5, 187-194.	1.4	3
90	Review of a procedure for performing constraint and attenuation-corrected fracture mechanics safety case calculations for Magnox reactor steel pressure vessels. International Journal of Pressure Vessels and Piping, 2005, 82, 496-508.	1.2	3

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91	Computational and Experimental Studies of High Temperature Crack Growth in the Presence of Residual Stress. , 2006, , 327.		3
92	Evaluating the Mechanical Behavior of 316 Stainless Steel at the Microscale Using Finite Element Modelling and In-Situ Neutron Scattering. , 2010, , .		3
93	Modelling of Micro-Plasticity Evolution in Crystalline Materials. , 2013, , .		3
94	Cyclic Viscoplasticity Testing and Modeling of a Service-Aged P91 Steel. Journal of Pressure Vessel Technology, Transactions of the ASME, 2014, 136, .	0.4	3
95	Effect of Thermomechanical Loading on Near Tip Constraint. European Physical Journal Special Topics, 1996, 06, C6-539-C6-548.	0.2	3
96	Simplified Method for Profiling Residual Stress Distributions in Plate and Pipe Components. , 2004, , 1549.		2
97	Comparison of Fine and Conventional Blanking Based on Ductile Fracture Criteria. , 2004, , 265.		2
98	Prediction of Creep Crack Initiation Under Transient Stress Conditions. , 2006, , 343.		2
99	Computational modelling of crack initiation in a single crystal superalloy under fatigue“oxidation conditions. Materials Science and Technology, 2007, 23, 1433-1438.	0.8	2
100	Prediction of Transient Creep Response Under Combined Primary and Secondary Loading. , 2010, , .		2
101	Thermomechanical Analysis of a Pressurised Pipe Under Plant Conditions. , 2011, , .		2
102	Investigating Ductile Failure at the Microscale in Engineering Steels: A Micromechanical Finite Element Model. , 2012, , .		2
103	High Temperature, Low Cycle Fatigue Characterisation of P91 Weld and Heat Affected Zone Material. , 2013, , .		2
104	Influence of material inhomogeneity on the mechanical response of a tempered martensite steel. Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, 2017, 231, 14-22.	0.7	2
105	Low Cycle Fatigue of Subsea Mechanically Lined Pipeline With Liner Imperfections. , 2017, , .		2
106	Cyclic Visco-Plasticity Testing and Modelling of a Service-Aged P91 Steel. , 2012, , .		2
107	Crack growth in an elastic-plastic material and effects on near tip constraint. Computational Materials Science, 1994, 3, 207-217.	1.4	1
108	Theoretical and experimental simulation of accident scenarios of the Joint European Torus cryogenic components Part 2: The Lower Hybrid Current Drive cryopump. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 1998, 212, 525-530.	1.1	1

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109	Theoretical and experimental simulation of accident scenarios of the Joint European Torus cryogenic components Part 1: The in-vessel cryopump. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 1998, 212, 509-524.	1.1	1
110	Safety analyses of water cooled components inside the JET thermonuclear fusion tokamak. Fusion Engineering and Design, 1999, 45, 241-256.	1.0	1
111	Evaluation of Two-Parameter Approaches to Describe Crack Tip Fields in Engineering Structures. , 2007, , 3.		1
112	Predicting the Effect of Compressive and Tensile Residual Stresses in Fracture Mechanics Specimens. Advanced Materials Research, 0, 89-91, 275-280.	0.3	1
113	Study of Creep Relaxation Behaviour of 316H Austenitic Steels Under Mechanically Induced Residual Stress. , 2011, , .		1
114	Limit Load Solution and Crack Driving Force Estimation Scheme for Embedded Flaws in Pipeline Girth Welds. , 2015, , .		1
115	Effective bending modulus of thin-ply composites with non-uniform fibre spacing. Composite Structures, 2021, 278, 114660.	3.1	1
116	Mechanistic Studies of High-Temperature Crack Initiation in Single Crystal Materials. Journal of ASTM International, 2006, 3, 13219.	0.2	1
117	Prediction of Liner Wrinkling During High Strain Bending of Mechanically Lined Pipe. , 2019, , .		1
118	A generalised sliding wear model for inhomogeneous coatings. European Physical Journal Special Topics, 2001, 11, Pr4-257-Pr4-264.	0.2	0
119	A Comparison of Measurement and Modelling of Plastically Induced Residual Stresses in a 316H and a Weld 347 Stainless Steel. , 2007, , .		0
120	Fracture Assessment Procedures for Steel Pipelines Using a Modified Reference Stress Solution. , 2008, , .		0
121	Numerical Investigation to Examine the Effect of Introducing a Crack in a Residual Stress Field. , 2008, , .		0
122	Evaluation of Two-Parameter Approaches to Describe Crack-Tip Fields in Engineering Structures. Journal of Pressure Vessel Technology, Transactions of the ASME, 2009, 131, .	0.4	0
123	The Effect of Pre-Strain on Ductile Fracture Toughness of Reeled Pipeline Steels. , 2009, , .		0
124	Hot Isostatically Pressed (HIPed) Large Bore Valves for a Pressurised Water Reactor (PWR) Application. , 2012, , .		0
125	Preface to topical special issue of computational materials science on "Recent advances in computational mechanics of materials" Computational Materials Science, 2013, 80, 1.	1.4	0
126	Microstructural Modelling of P91 Martensitic Steel Under Uniaxial Loading Conditions. , 2013, , .		0



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127	Fully-Plastic Strain-Based J Estimation Scheme for Circumferential Surface Cracks in Pipes Subjected to Reeling. , 2013, , .		0
128	Effects of Weld Strength Heterogeneity on Crack Driving Force in Stress and Strain Based Design Scenarios. , 2014, , .		0
129	Parameter Study of a Thermal Analysis of a Bead-on-Plate Weld. , 2018, , .		0
130	Size-dependent bending modulus of fibre composite laminates comprising unidirectional plies. International Journal of Solids and Structures, 2021, 230-231, 111162.	1.3	0
131	The Effect of Residual Stresses on the Fracture Resistance of Ductile Steels. , 2002, , .		0
132	Application of Limit Load Solutions for Engineering Critical Assessment of Embedded Flaws in Evenmatch Pipeline Girth Welds. , 2020, , .		0
133	On the Manufacturing Defects of Thermoplastic Carbon/Epoxy Composites Manufactured by Automated Tape Placement. , 2020, , .		0