John A Francis

List of Publications by Year in Descending Order

76 papers	1,724 citations	23 h-index	40 g-index
93 ext. papers	1,961 ext. citations	3 avg, IF	4.8 L-index

#	Paper	IF	Citations
76	A perspective on welding technology challenges in the nuclear sector. *Science and Technology of Welding and Joining*, **2022**, 27, 309-317	3.7	0
75	A fundamental analysis of factors affecting chemical homogeneity in the laser powder bed fusion process. *International Journal of Heat and Mass Transfer*, **2022**, 194, 122985	4.9	0
74	Internal stresses in a clad pressure vessel steel during post weld heat treatment and their relevance to underclad cracking. *International Journal of Pressure Vessels and Piping*, **2021**, 193, 104448	2.4	1
73	Development of microstructure and residual stress in electron beam welds in low alloy pressure vessel steels. *Materials and Design*, **2021**, 209, 109924	8.1	1
72	Electron beam weld modelling of ferritic steel: effect of prior-austenite grain size on transformation kinetics. *Procedia Manufacturing*, **2020**, 51, 842-847	1.5	
71	Effects of dilution on the hardness and residual stresses in multipass steel weldments. *International Journal of Pressure Vessels and Piping*, **2020**, 187, 104154	2.4	5
70	Vacuum laser welding of SA508 steel. *Journal of Materials Processing Technology*, **2019**, 274, 116269	5.3	7
69	Residual stresses in arc and electron-beam welds in 130 mm thick SA508 steel: Part 1 - Manufacture. *International Journal of Pressure Vessels and Piping*, **2019**, 172, 313-328	2.4	10
68	Residual stresses in arc and electron-beam welds in 130 mm thick SA508 steel: Part 2 Measurements. *International Journal of Pressure Vessels and Piping*, **2019**, 172, 379-390	2.4	13
67	Measurement and Prediction of Phase Transformation Kinetics in a Nuclear Steel During Rapid Thermal Cycles. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science* , **2019**, 50, 1715-1731	2.3	6
66	Prediction of Dilution and Its Impact on the Metallurgical and Mechanical Behavior of a Multipass Steel Weldment. *Journal of Pressure Vessel Technology, Transactions of the ASME*, **2019**, 141,	1.2	5
65	A semi-analytical solution for the transient temperature field generated by a volumetric heat source developed for the simulation of friction stir welding. *International Journal of Thermal Sciences*, **2019**, 138, 586-595	4.1	9
64	Characterisation and modelling of tempering during multi-pass welding. *Journal of Materials Processing Technology*, **2019**, 270, 118-131	5.3	16
63	Phase-Field Simulation of Grain Boundary Evolution In Microstructures Containing Second-Phase Particles with Heterogeneous Thermal Properties. *Scientific Reports*, **2019**, 9, 18426	4.9	7
62	Effects of dilution on alloy content and microstructure in multi-pass steel welds. *Journal of Materials Processing Technology*, **2019**, 265, 71-86	5.3	26
61	Residual stress distributions in arc, laser and electron-beam welds in 30 mm thick SA508 steel: A cross-process comparison. *International Journal of Pressure Vessels and Piping*, **2018**, 162, 59-70	2.4	17
60	Semi-analytical solutions for the transient temperature fields induced by a moving heat source in an orthogonal domain. *International Journal of Thermal Sciences*, **2018**, 123, 140-150	4.1	16

59	Modelling of Dilution Effects on Microstructure and Residual Stress in a Multi-Pass Weldment **2018**,		2
58	Evolution of microstructure and toughness in 2.25Cr-1Mo steel welds. *International Journal of Pressure Vessels and Piping*, **2018**, 165, 20-28	2.4	14
57	Evaluation of Errors Associated with Cutting-Induced Plasticity in Residual Stress Measurements Using the Contour Method. *Experimental Mechanics*, **2017**, 57, 719-734	2.6	22
56	The impact of transformation plasticity on the electron beam welding of thick-section ferritic steel components. *Nuclear Engineering and Design*, **2017**, 323, 309-316	1.8	23
55	Residual stress measurement round robin on an electron beam welded joint between austenitic stainless steel 316L(N) and ferritic steel P91. *International Journal of Pressure Vessels and Piping*, **2017**, 154, 41-57	2.4	32
54	Measurement of residual stresses induced by sequential weld buttering and cladding operations involving a 2.25Cr-1Mo substrate material. *International Journal of Pressure Vessels and Piping*, **2017** , 154, 58-74	2.4	13
53	Extension of the double-ellipsoidal heat source model to narrow-groove and keyhole weld configurations. *Journal of Materials Processing Technology*, **2017**, 246, 123-135	5.3	36
52	An evaluation of multipass narrow gap laser welding as a candidate process for the manufacture of nuclear pressure vessels. *International Journal of Pressure Vessels and Piping*, **2017**, 157, 43-50	2.4	18
51	Through-Thickness Residual Stress Profiles in Austenitic Stainless Steel Welds: A Combined Experimental and Prediction Study. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2017**, 48, 6178-6191	2.3	10
50	Thermal cycle-dependent metallurgical variations and their effects on the through-thickness mechanical properties in thick section narrow-gap welds. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2017**, 707, 399-411	5.3	15
49	A Review of Welding Research Within the New Nuclear Manufacturing (NNUMAN) Programme **2017**,		3
48	Characterisation of quasi-stationary temperature fields in laser welding by infrared thermography. *Materialwissenschaft Und Werkstofftechnik*, **2017**, 48, 1283-1289	0.9	5
47	Residual stress measurement in AlSi alloys. *Materialwissenschaft Und Werkstofftechnik*, **2017**, 48, 1270-1275	0.9	3
46	Confirmation of tensile residual stress reduction in electron beam welding using low transformation temperature materials (LTT) as localized metallurgical injections Part 2: Residual stress measurement. *Materialpruefung/Materials Testing*, **2017**, 59, 618-624	1.9	4
45	An assessment of residual stress mitigation strategies for laser clad deposits. *Materials Science and Technology*, **2016**, 32, 1484-1494	1.5	6
44	Residual stress distributions in laser and gas-metal-arc welded high-strength steel plates. *Materials Science and Technology*, **2016**, 32, 1449-1461	1.5	10
43	Quantifying the metallurgical response of a nuclear steel to welding thermal cycles. *Materials Science and Technology*, **2016**, 32, 1517-1532	1.5	6
42	Process-parameter interactions in ultra-narrow gap laser welding of high strength steels. *International Journal of Advanced Manufacturing Technology*, **2016**, 84, 2547-2566	3.2	17

41	Narrow gap laser welding for potential nuclear pressure vessel manufacture. *Journal of Laser Applications*, **2016**, 28, 022421	2.1	12
40	Laser welding of high strength steels (S960 and S700) with medium thickness. *Journal of Laser Applications*, **2016**, 28, 022425	2.1	15
39	Measurement and modelling of the residual stresses in autogenous and narrow gap laser welded AISI grade 316L stainless steel plates. *International Journal of Pressure Vessels and Piping*, **2016**, 147, 64-78	2.4	21
38	Comparison of laser welds in thick section S700 high-strength steel manufactured in flat (1G) and horizontal (2G) positions. *CIRP Annals - Manufacturing Technology*, **2015**, 64, 197-200	4.9	34
37	Microstructure and mechanical characteristics of a laser welded joint in SA508 nuclear pressure vessel steel. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2015**, 625, 65-80	5.3	28
36	Microstructure and mechanical properties of laser welded S960 high strength steel. *Materials and Design*, **2015**, 85, 534-548	8.1	75
35	Calibrating Phase Transformation and Grain Growth Models and Measuring Phase Dependent Material Properties for Use in FE Simulations of Welds **2015**,		1
34	A comparison of residual stresses in multi pass narrow gap laser welds and gas-tungsten arc welds in AISI 316L stainless steel. *International Journal of Pressure Vessels and Piping*, **2014**, 113, 49-59	2.4	58
33	Overview of Welding Research Under the New Nuclear Manufacturing (NNUMAN) Programme **2014** ,		3
32	An Assessment of the Mechanisms of Transformation Plasticity in SA508 Grade 3 Steel during Simulated Welding Thermal Cycles. *Materials Science Forum*, **2014**, 777, 188-193	0.4	
31	On the Stress Development in SA508 Autogenous Weld. *Materials Science Forum*, **2014**, 783-786, 2123-2128	0.4	2
30	Understanding the process parameter interactions in multiple-pass ultra-narrow-gap laser welding of thick-section stainless steels. *International Journal of Advanced Manufacturing Technology*, **2013**, 68, 1-17	3.2	56
29	Residual stresses in laser welded ASTM A387 Grade 91 steel plates. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2013**, 575, 160-168	5.3	30
28	Residual stresses in P91 steel electron beam welds. *Science and Technology of Welding and Joining*, **2013**, 18, 70-75	3.7	37
27	Effects of stop□start features on residual stresses in a multipass austenitic stainless steel weld. *International Journal of Pressure Vessels and Piping*, **2012**, 89, 9-18	2.4	10
26	Residual stress distributions in a P91 steel-pipe girth weld before and after post weld heat treatment. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2012**, 534, 663-672	5.3	94
25	On the evolution of local material properties and residual stress in a three-pass SA508 steel weld. *Acta Materialia*, **2012**, 60, 3268-3278	8.4	55
24	Development of Material Model Parameters Suitable for the Finite Element Simulation of Ferritic Welds **2012**,		1

23	Residual Stress, Texture, and Phase Investigation of Autogenous Edge Welds Using High Energy Synchrotron Radiation. *Materials Science Forum*, **2011**, 681, 43-48	0.4	3
22	Modelling the effects of phase transformations on welding stress and distortion **2011**, 78-100		
21	Design of weld fillers for mitigation of residual stresses in ferritic and austenitic steel welds. *Science and Technology of Welding and Joining*, **2011**, 16, 279-284	3.7	40
20	A Novel Cutting Strategy for Reducing Plasticity Induced Errors in Residual Stress Measurements Made With the Contour Method **2011**,		13
19	Prediction of residual stress distributions for single weld beads deposited on to SA508 steel including phase transformation effects. *Materials Science and Technology*, **2010**, 26, 940-949	1.5	28
18	In Situ Measurements for Structural Integrity: An Engineers Perspective **2010**, 159-174		1
17	The Effects of Filler Metal Transformation Temperature on Residual Stresses in a High Strength Steel Weld. *Journal of Pressure Vessel Technology, Transactions of the ASME*, **2009**, 131,	1.2	48
16	Effects of weld preheat temperature and heat input on type IV failure. *Science and Technology of Welding and Joining*, **2009**, 14, 436-442	3.7	19
15	Measured residual stress distributions for low and high heat input single weld beads deposited on to SA508 steel. *Materials Science and Technology*, **2009**, 25, 325-334	1.5	35
14	Design Optimisation of a Ferritic Ring Weld Specimen Using FE Modelling **2009**,		2
13	Residual Stress Measurements in Autogenous SA508 Steel Welds **2008**,		1
12	The Prediction of Residual Stresses in an Autogenously Welded Ferritic Beams **2008**,		1
11	Characterizing Phase Transformations and Their Effects on Ferritic Weld Residual Stresses with X-Rays and Neutrons. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2008**, 39, 3070-3078	2.3	98
10	Welding residual stresses in ferritic power plant steels. *Materials Science and Technology*, **2007**, 23, 1009-1020	1.5	149
9	Transformation Temperatures and Welding Residual Stresses in Ferritic Steels **2007**, 949		13
8	UK Research Programme on Residual Stresses: Progress to Date **2007**, 919		3
7	Review Type IV cracking in ferritic power plant steels. *Materials Science and Technology*, **2006**, 22, 1387-1395	1.5	244
6	The role of defects in the fracture of an Al-Si-Mg cast alloy. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 407, 322-329	5.3	32

5	Arc power and efficiency in gas tungsten arc welding of aluminium. *Science and Technology of Welding and Joining*, **2005**, 10, 200-210	3.7	33
4	Estimation of Type IV Cracking Tendency in Power Plant Steels. *ISIJ International*, **2004**, 44, 1966-1968	1.7	24
3	Prediction of steady state dilution in multipass hardfacing overlays deposited by self shielded flux cored arc welding. *Science and Technology of Welding and Joining*, **2002**, 7, 95-101	3.7	6
2	Predicting steady state dilution in multipass hardfacing overlays - geometric approach. *Science and Technology of Welding and Joining*, **2002**, 7, 331-338	3.7	6
1	Determination of residual stress at weld interruptions by neutron diffraction		6