

# Laurent Barrallier

## List of Publications by Year in descending order

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96  
papers

1,284  
citations

471509

17  
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395702

33  
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99  
all docs

99  
docs citations

99  
times ranked

1073  
citing authors

#	ARTICLE	IF	CITATIONS
1	Friction stir welding of AZ31 magnesium alloy rolled sheets: Influence of processing parameters. <i>Acta Materialia</i> , 2009, 57, 326-334.	7.9	412
2	Microstructure and corrosion resistance of magnesium alloy ZE41 with laser surface cladding by Al-Si powder. <i>Surface and Coatings Technology</i> , 2008, 202, 4901-4914.	4.8	76
3	In situ investigation of the structural defect generation and evolution during the directional solidification of $\sim 110^\circ$ seeded growth Si. <i>Acta Materialia</i> , 2016, 115, 210-223.	7.9	54
4	Experimental and theoretical cooling velocity profile inside laser welded metals using keyhole approximation and Boussinesq polynomials expansion. <i>Journal of Thermal Analysis and Calorimetry</i> , 2009, 97, 911-915.	3.6	51
5	Influence of the microstructural changes and induced residual stresses on tensile properties of wrought magnesium alloy friction stir welds. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2012, 551, 288-292.	5.6	50
6	Phase transformations and induced volume changes in a nitrided ternary Fe-3Cr-0.345C alloy. <i>Acta Materialia</i> , 2010, 58, 2666-2676.	7.9	48
7	Finite element simulation of magnesium alloys laser beam welding. <i>Journal of Materials Processing Technology</i> , 2010, 210, 1131-1137.	6.3	39
8	Simulation of shot peening: From process parameters to residual stress fields in a structure. <i>Comptes Rendus - Mécanique</i> , 2016, 344, 355-374.	2.1	34
9	A diffusion model for simulation of bilayer growth ( $\mu\text{m}^2$ ) of nitrided pure iron. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2004, 378, 475-478.	5.6	32
10	Phase analysis, microhardness and tribological behaviour of Ti-6Al-4V after ion implantation of nitrogen in connection with its application for hip-joint prosthesis. <i>Thin Solid Films</i> , 1995, 266, 245-253.	1.8	29
11	On the impact of twinning on the formation of the grain structure of multi-crystalline silicon for photovoltaic applications during directional solidification. <i>Journal of Crystal Growth</i> , 2015, 418, 38-44.	1.5	29
12	Mechanical Properties, Microstructure and Crystallographic Texture of Magnesium AZ91-D Alloy Welded by Friction Stir Welding (FSW). <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014, 45, 4983-4996.	2.2	25
13	Complete TEM Investigation of a Nitrided Layer for a Cr Alloy Steel. <i>Microscopy Microanalysis Microstructures</i> , 1997, 8, 335-352.	0.4	25
14	Computer simulation of nitrided layers growth for pure iron. <i>Computational Materials Science</i> , 2004, 29, 43-48.	3.0	20
15	A simple diffusion model for the growth kinetics of $\text{Fe}_3\text{N}$ iron nitride on the pure iron substrate. <i>Applied Surface Science</i> , 2005, 242, 369-374.	6.1	20
16	Texture characterisation of hexagonal metals: Magnesium AZ91 alloy, welded by laser processing. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2006, 429, 11-17.	5.6	20
17	Gaseous nitriding behaviour of 33CrMoV12-9 steel: Evolution of the grain boundaries precipitation and influence on residual stress development. <i>Surface and Coatings Technology</i> , 2018, 339, 78-90.	4.8	20
18	Surface Hardening of Steel Using Highly Concentrated Solar Energy Process. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , 1999, 121, 36-39.	1.8	15

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19	Perforation of aluminium alloy thin plates. International Journal of Impact Engineering, 2015, 75, 255-267.	5.0	14
20	Full-Field Measurement of Residual Stresses in Composite Materials Using the Incremental Slitting and Digital Image Correlation Techniques. Experimental Mechanics, 2020, 60, 1239-1250.	2.0	14
21	Texture evolution in Nd:YAG-laser welds of AZ31 magnesium alloy hot rolled sheets and its influence on mechanical properties. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2011, 528, 2049-2055.	5.6	13
22	Strain building and correlation with grain nucleation during silicon growth. Acta Materialia, 2019, 177, 141-150.	7.9	12
23	Influence of alloying elements (Cr, Mo, V) on nitrides residual stresses generated during the nitriding of synthetic iron alloys. Annales De Chimie: Science Des Materiaux, 2003, 28, 43-52.	0.4	11
24	Morphology of intergranular cementite arrays in nitrided chromium-alloyed steels. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 393, 247-253.	5.6	11
25	Cyclic modelling of the mechanical state produced by shot-peening. Fatigue and Fracture of Engineering Materials and Structures, 2001, 24, 93-104.	3.4	9
26	Identification of shear bands in wrought magnesium alloy friction stir welds and laser beam welds. Materials Science and Technology, 2009, 25, 1215-1221.	1.6	9
27	Study of Mechanical Properties of AZ91 Magnesium Alloy Welded by Laser Process Taking into Account the Anisotropy Microhardness and Residual Stresses by X-Ray Diffraction. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 1815-1826.	2.2	9
28	Neutron and synchrotron evaluation of residual stresses in coatings. Journal of Neutron Research, 2001, 9, 193-200.	1.1	8
29	Title is missing!. Journal of Materials Science, 2002, 10, 303-309.	1.2	8
30	Microgeometrical influences on micropitting fatigue damage: multi-scale analysis. Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology, 2011, 225, 419-427.	1.8	8
31	Annealing tests of in-pile irradiated oxide coated Uâ€“Mo/Alâ€“Si dispersed nuclear fuel. Journal of Nuclear Materials, 2014, 452, 533-547.	2.7	8
32	On Residual Stresses Development during Nitriding of Steel: Thermochemical and Time Dependence. Advanced Materials Research, 0, 89-91, 256-261.	0.3	7
33	A complementary approach to estimate the internal pressure of fission gas bubbles by SEM-SIMS-EPMA in irradiated nuclear fuels. IOP Conference Series: Materials Science and Engineering, 2016, 109, 012002.	0.6	7
34	X-ray Based in Situ Investigation of Silicon Growth Mechanism Dynamicsâ€”Application to Grain and Defect Formation. Crystals, 2020, 10, 555.	2.2	7
35	Microstructure and residual stresses in (111) multilayers. Thin Solid Films, 1996, 275, 29-34.	1.8	6
36	A computer simulation of nitrogen profiles in Feâ€“Vâ€“N ternary system. Journal of Alloys and Compounds, 2004, 378, 163-166.	5.5	6

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37	Evaluation by Synchrotron Radiation of Shape Factor Effects on Residual Stress in Nitrided Layers. Materials Science Forum, 2006, 524-525, 285-290.	0.3	6
38	A Perspective of Pulsed Laser Deposition (PLD) in Surface Engineering: Alumina Coatings and Substrates. Key Engineering Materials, 2008, 384, 185-212.	0.4	6
39	Investigation of subgrains in directionally solidified cast mono-seeded silicon and their interactions with twin boundaries. Solar Energy Materials and Solar Cells, 2020, 218, 110817.	6.2	6
40	Residual Stress Measurements Using Neutron Diffraction in Magnesium Alloy Laser Welded Joints. Materials Science Forum, 2002, 404-407, 399-404.	0.3	5
41	Percolation Properties of Internal Wetted Polycrystals: Effect of Stresses and Material Structure. Materials Science Forum, 2002, 404-407, 373-380.	0.3	5
42	Synchrotron Evaluation of Residual Stress in Palladium Alloy Substrate. Materials Science Forum, 2002, 404-407, 335-340.	0.3	5
43	Prediction of microgeometrical influences on micropitting fatigue damage on 32CrMoV13 steel. Tribology International, 2013, 59, 129-140.	5.9	5
44	An aging elasto-viscoplastic model for ceramics. International Journal of Plasticity, 2014, 62, 121-137.	8.8	5
45	Finite size scaling in grain boundary wetting. Journal of Materials Science, 2005, 40, 2349-2353.	3.7	4
46	Neutron Determination of Residual Stress in a Nitrided Notched Part. Materials Science Forum, 2005, 490-491, 251-256.	0.3	4
47	Analysis of grain boundary network topology using grain boundary wetting. International Journal of Materials Research, 2004, 95, 215-218.	0.8	4
48	Towards an image quality criterion to optimize Digital image correlation. Use of an analytical model to optimize acquisition conditions. Optics and Laser Technology, 2022, 148, 107792.	4.6	4
49	X-ray and transmission electron microscopy investigation of strain in a nitrided steel: No evidence of plastic deformation. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 1997, 28, 851-857.	2.2	3
50	Variation of Residual Stresses in Drawn Copper Tubes. Materials Science Forum, 2008, 571-572, 21-26.	0.3	3
51	Microstructure characterisation of biphasic titanium alloy $Ti-10V-2Fe-3Al$ and effects induced by heterogeneities on X-ray diffraction peak's broadening. Materials Science and Technology, 2011, 27, 1574-1581.	1.6	3
52	Residual Stress Development during Nitriding of Steels. Materials Science Forum, 0, 681, 370-373.	0.3	3
53	Residual stresses of a magnesium alloy (AZ31) welded by the friction stir welding processes. MATEC Web of Conferences, 2016, 80, 06003.	0.2	3
54	Ion Beam Implantation and Plasma Immersion Ion Implantation. Application on Nitrided Ti-6Al-4V Titanium Alloy. Microscopy Microanalysis Microstructures, 1997, 8, 413-422.	0.4	3

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55	Détermination des contraintes résiduelles par diffractométrie X des couches biphasées. Application au cas de la cémentation. European Physical Journal Special Topics, 1996, 06, C4-211-C4-217.	0.2	2
56	Comparison between different X-ray diffraction methods to extract strains in metallic multilayers. Nuovo Cimento Della Societa Italiana Di Fisica D - Condensed Matter, Atomic, Molecular and Chemical Physics, Biophysics, 1997, 19, 577-583.	0.4	2
57	Role of Recovery in the Recrystallization Simulation Application to a Cold Rolled IF-Ti Steel and a Cold Drawn Copper Wire. Materials Science Forum, 2007, 550, 453-458.	0.3	2
58	CO2 laser beam welding of AM60 magnesium-based alloy. Journal of Laser Applications, 2010, 22, 56-61.	1.7	2
59	A Thermodynamic and Experimental Study of Low-Alloy Steels After Carbonitriding in a Low-Pressure Atmosphere. Metal Science and Heat Treatment, 2014, 56, 434-439.	0.6	2
60	Degradation of gaseous nitriding of steel by lubricant contamination " Effect of in-situ pre-treatments. Surface and Coatings Technology, 2017, 316, 59-70.	4.8	2
61	Optimization of gaseous nitriding of carbon iron-based alloy based on fatigue resistance modelling. International Journal of Fatigue, 2018, 110, 238-245.	5.7	2
62	Modification of metals by high energy excimer laser. European Physical Journal Special Topics, 1994, 04, C4-69-C4-72.	0.2	2
63	Residual Stresses in Metallic Multilayers. European Physical Journal Special Topics, 1996, 06, C7-125-C7-134.	0.2	2
64	Influence of oxidizing and Nitriding parameters on nitrogen concentration of electrical steels. Materials Characterization, 2021, 182, 111529.	4.4	2
65	Influence de l'origine des contraintes résiduelles sur leur relaxation thermique dans le cas d'aciers alliés. Revue De Metallurgie, 1993, 90, 637-650.	0.3	1
66	Characterization of metal surfaces irradiated by a long-pulse KrF excimer laser. Journal of Laser Applications, 1994, 6, 149-152.	1.7	1
67	Macroscopic and microscopic evolutions of a shot-peened layer during isothermal recovery. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2000, 31, 213-224.	2.2	1
68	Application d'un modèle analytique de diffusion de l'azote dans le fer pur nitrure pour l'étude de la croissance de la monocouche $^{57}\text{Fe}$ -Fe <sub>4</sub> N. Annales De Chimie: Science Des Materiaux, 2003, 28, 53-61.	0.4	1
69	Experimental Analysis and Numerical Simulation at Metal-Ceramic Interface. Materials Science Forum, 2003, 426-432, 3963-3968.	0.3	1
70	The use of Calphad approach to analyse the phase stability of nitrided 32CrMoV13 grade steel: validation by XRD experiment. Materials Letters, 2005, 59, 1214-1218.	2.6	1
71	Physicochemical mechanics of structural transformations in nitrided steel. Colloid Journal, 2005, 67, 97-102.	1.3	1
72	Neutron Evaluation of Stress in Industrial Screws. Materials Science Forum, 2005, 490-491, 269-274.	0.3	1

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73	Wetting of Stressed Grain Boundaries in Polycrystals and Rheological Behaviour of Resulting Materials. Defect and Diffusion Forum, 2006, 258-260, 409-414.	0.4	1
74	Characterisation of Residual Stresses by X-Ray Diffraction of Laser Welded AZ91 Magnesium Alloy. Materials Science Forum, 2006, 524-525, 407-412.	0.3	1
75	Stress Analysis in UMo-Al Fuel Using X-Ray Diffraction. Materials Science Forum, 2011, 681, 420-425.	0.3	1
76	Experimental Analysis of Shot Peening on Carburized or Carbonitrided Parts. Materials Science Forum, 2011, 681, 273-277.	0.3	1
77	Evolution of Residual Stresses during Short Time Nitriding of 33CrMoV12-9 Steel Grade. Advanced Materials Research, 0, 996, 544-549.	0.3	1
78	Determination of the volume fraction of precipitates in a nitrided Fe-0.354 wt% C-2.93 wt% Cr model alloy by anomalous small angle X-ray scattering. Materials Characterization, 2018, 135, 134-138.	4.4	1
79	Effects of chromium content on the nitrided layer of binary Fe-Cr alloys. Metallurgical Research and Technology, 2018, 115, 602.	0.7	1
80	Mechanical and Microstructural Studies of (111) Au/Ni Multilayers. European Physical Journal Special Topics, 1996, 06, C7-135-C7-142.	0.2	1
81	Fatigue modelling for gas nitriding. Frattura Ed Integrita Strutturale, 2016, 10, 61-66.	0.9	1
82	Neutron Determination of Residual Stress in a Nitrided Notched Part. Materials Science Forum, 0, , 251-256.	0.3	1
83	Détermination des contraintes par diffractométrie X dans le cas d'alliages métalliques polyphasés. European Physical Journal Special Topics, 1996, 06, C4-219-C4-230.	0.2	1
84	Modélisation de la croissance des couches nitrurées et de la stabilité thermodynamique des phases dans le cas de binaires synthétiques Fe-Cr et Fe-Mo. European Physical Journal Special Topics, 2001, 11, Pr10-85-Pr10-92.	0.2	0
85	Caractérisations métallurgiques et mécaniques des couches nitrurées : relation microstructure-comportement. European Physical Journal Special Topics, 2001, 11, Pr10-141-Pr10-145.	0.2	0
86	Title is missing!. Colloid Journal, 2002, 64, 274-278.	1.3	0
87	Caractérisation superficielle d'un acier 32CrMoV13 nitrure par voie gazeuse. Annales De Chimie: Science Des Materiaux, 2003, 28, 41-51.	0.4	0
88	Complementarity of Various Diffraction Techniques Applied to Characterisation of Residual Stress in a Palladium Alloy. Journal of Neutron Research, 2004, 12, 93-98.	1.1	0
89	Synchrotron Evaluation of Residual Stress in a Leucite Reinforced Glass Ceramic. Materials Science Forum, 2005, 490-491, 527-532.	0.3	0
90	Comparative Studies of Textured Pulsed Laser Deposition and Sol-Gel Growth of Thin Hydroxyapatite Layers on Titanium Substrates. Materials Science Forum, 2006, 524-525, 885-890.	0.3	0

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91	Percolation models of grain boundary wetting in polycrystalline materials. Russian Journal of General Chemistry, 2008, 78, 2182-2190.	0.8	0
92	Numerical modelling of laser rapid prototyping by fusion wire deposit. International Journal of Material Forming, 2010, 3, 1095-1098.	2.0	0
93	End Uses Mechanical Properties Settled By The Modified Sintering Conditions Of The Metal Injection Molding Process. , 2011, , .		0
94	Forging And Milling Contribution On Residual Stresses For A Textured Biphasic Titanium Alloy. , 2011, , .		0
95	Forging and Shot-Peening Contribution on Residual Stresses for a Textured Biphasic Titanium Alloy. Materials Science Forum, 0, 681, 284-289.	0.3	0
96	Contribution of shot peening on carburized or carbonitrided parts. , 2011, , .		0