Christophe Coupeau

List of Publications by Year
in descending order

99 papers	1,275 citations	393982 19 h-index	476904 29 g-index
99 all docs	99 docs citations	99 times ranked	793 citing authors

#	Article	IF	Citations
1	Effect of substrate compliance on the global unilateral post-buckling of coatings: AFM observations and finite element calculations. Acta Materialia, 2005, 53, 441-447.	3.8	75
2	Stability diagram of unilateral buckling patterns of strip-delaminated films. Physical Review E, 2006, 74, 066601.	0.8	58
3	Atomic force microscopy of in situ deformed nickel thin films. Thin Solid Films, 1999, 353, 194-200.	0.8	50
4	Atomic force microscopy study of the morphological shape of thin film buckling. Thin Solid Films, 2002, 406, 190-194.	0.8	45
5	Buckling and post-buckling of stressed straight-sided wrinkles: experimental AFM observations of bubbles formation and finite element simulations. Acta Materialia, 2004, 52, 3959-3966.	3.8	45
6	Plastic Folding of Buckling Structures. Physical Review Letters, 2007, 99, 046101.	2.9	45
7	Damage mode tensile testing of thin gold films on polyimide substrates by X-ray diffraction and atomic force microscopy. Thin Solid Films, 2003, 424, 267-273.	0.8	41
8	Experimental investigation of the instability of buckling patterns: from straight-sided to wormlike structures. Scripta Materialia, 2001, 44, 2623-2627.	2.6	39
9	Plasticity study of deformed materials by in situ atomic force microscopy. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 1998, 16, 1964.	1.6	36
10	Worm-like delamination patterns of thin stainless steel films on polycarbonate substrates. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2000, 80, 2559-2565.	0.8	33
11	Mechanical behaviour of metallic thin films on polymeric substrates and the effect of ion beam assistance on crack propagation. Acta Materialia, 2005, 53, 411-417.	3.8	32
12	Characterization of thin film elastic properties using X-ray diffraction and mechanical methods: application to polycrystalline stainless steel. Thin Solid Films, 2001, 398-399, 496-500.	0.8	31
13	How Does Crystalline Substrate Plasticity Modify Thin Film Buckling?. Physical Review Letters, 2006, 97, 096101.	2.9	29
14	Pop-in phenomenon during nanoindentation in MgO. EPJ Applied Physics, 1999, 8, 123-128.	0.3	27
15	Atomic force microscopy of in situ deformed LiF. Scripta Metallurgica Et Materialia, 1995, 32, 1573-1578.	1.0	23
16	Modeling of Young×³s modulus variations with temperature of Ni and oxidized Ni using a magneto-mechanical approach. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 633, 76-91.	2.6	23
17	Indentation-induced twinning in LaAlO3 single crystals: An atomic force microscopy study. Scripta Materialia, 2003, 49, 903-908.	2.6	22
18	Atomic force microscopy observations of successive damaging mechanisms of thin films on substrates under tensile stress. Thin Solid Films, 2003, 429, 267-272.	0.8	22

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19	From thin film and coating buckling structures to mechanical properties. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 483-484, 617-619.	2.6	21
20	Evidence of plastic damage in thin films around buckling structures. Thin Solid Films, 2004, 469-470, 221-226.	0.8	18
21	How soft substrates affect the buckling delamination of thin films through crack front sink-in. Applied Physics Letters, 2017, 110, .	1.5	18
22	Quantitative analysis of surface effects of plastic deformation. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1999, 271, 242-250.	2.6	16
23	Interactive study of straight-sided buckling patterns in thin films under compressive stress. EPJ Applied Physics, 2000, 10, 3-7.	0.3	16
24	Molecular dynamics simulations of buckling-induced plasticity. Applied Physics Letters, 2008, 93, .	1.5	16
25	Effect of plasticity and atmospheric pressure on the formation of donut- and croissantlike buckles. Physical Review E, 2015, 91, 012410.	0.8	16
26	Atomic force microscopy of twin formation in low-stacking fault CuAl alloy. EPJ Applied Physics, 1999, 6, 1-6.	0.3	15
27	Quantitative atomic force microscopy analysis of slip traces in Ni3Al yield stress anomaly. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2008, 483-484, 87-90.	2.6	15
28	Gliding at interface during thin film buckling: A coupled atomistic/elastic approach. Acta Materialia, 2012, 60, 1259-1267.	3.8	15
29	Effects of sliding on interface delamination during thin film buckling. Scripta Materialia, 2012, 67, 157-160.	2.6	15
30	Slip line analysis in Ni3Al by atomic force microscopy. Scripta Materialia, 1999, 41, 945-950.	2.6	14
31	Effect of pressure and stress on blistering induced by hydrogen implantation in silicon. Europhysics Letters, 2010, 92, 16001.	0.7	14
32	An experimental UHV AFM-STM device for characterizing surface nanostructures under stress/strain at variable temperature. Review of Scientific Instruments, 2013, 84, 105117.	0.6	14
33	Buckle depression as a signature of Youngâ€™s modulus mismatch between a film and its substrate. Thin Solid Films, 2018, 645, 379-382.	0.8	14
34	Atomic-scale insight into non-crystallographic slip traces in body-centred cubic crystals. Scripta Materialia, 2019, 162, 292-295.	2.6	14
35	Snapthrough occurring in the postbuckling of thin films. Applied Physics Letters, 2005, 86, 081905.	1.5	13
36	Kinetic evolution of blistering in hydrogen-implanted silicon. Applied Physics Letters, 2013, 103, .	1.5	13

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37	Interacting straight-sided buckles: An enhanced attraction by substrate elasticity. Journal of the Mechanics and Physics of Solids, 2019, 124, 526-535.	2.3	13
38	On the Young's modulus of 304 L stainless steel thin films. Materials Characterization, 2000, 45, 33-37.	1.9	12
39	Evidence of vacuum between buckled films and their substrates. Thin Solid Films, 2010, 518, 5233-5236.	0.8	12
40	Influence of terrace widths on Au(111) reconstruction. Physical Review B, 2017, 96, .	1.1	12
41	Atomic force microscopy analysis of buckling phenomena in metallic thin films on substrates. Journal of Materials Science Letters, 2000, 19, 353-355.	0.5	11
42	Interface step-induced thin-film delamination and buckling. Acta Materialia, 2013, 61, 4429-4438.	3.8	11
43	Statistical analysis ofin-situslip lines by atomic force microscopy observations. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1997, 76, 1139-1152.	0.8	10
44	Activation of dislocation sources in Î³-phases of nickel-base superalloys studied by use of atomic-force microscopy and transmission electron microscopy. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 387-389, 103-108.	2.6	10
45	Ion irradiation effects on the mechanical stability of compressed metallic thin films. Applied Physics Letters, 2004, 84, 894-896.	1.5	10
46	Buckling and cracking of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mtext>Y</mml:mtext><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mtext> films at grain boundaries. Physical Review B, 2008, 78, .	1.1	10
47	Atypical â€œboomerangâ€•slip traces in [001] niobium single crystals deformed at room temperature. Scripta Materialia, 2012, 66, 475-478.	2.6	10
48	Low temperature atomic-scale observations of slip traces in niobium. Scripta Materialia, 2020, 183, 81-85.	2.6	10
49	Atomic force microscopy observations of in situ deformed materials: application to single crystals and thin films on substrates. Journal of Microscopy, 2001, 203, 99-107.	0.8	9
50	Buckling phenomena in Y2O3 thin films on GaAs substrates. Applied Physics Letters, 2003, 82, 2056-2058.	1.5	9
51	Buckling of Stressed and Pressurized Thin Films on Substrates. Journal of Applied Mechanics, Transactions ASME, 2010, 77, .	1.1	9
52	About the internal pressure in cavities derived from implantation-induced blistering in semi-conductors. Journal of Applied Physics, 2011, 110, .	1.1	9
53	What can be learnt on the yield stress anomaly of Ni3Al using AFM observations. Intermetallics, 2014, 50, 86-93.	1.8	9
54	Experimental study of Ni3Al slip traces by atomic force microscopy: an evidence of mobile dislocation exhaustion. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 387-389, 926-930.	2.6	8

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55	Atomic force microscopy observations of debonding in 304 L stainless steel thin films. Materials Letters, 1999, 41, 181-185.	1.3	7
56	Atomic force microscopy investigation of buckling patterns of nickel thin films on polycarbonate substrates. Philosophical Magazine Letters, 2002, 82, 477-482.	0.5	7
57	How do nanometer scale dislocation traces evolve in the stress anomaly domain of intermetallics?. Applied Physics Letters, 2007, 90, 171914.	1.5	7
58	Buckling patterns of gold thin films on silicon substrates: Formation of superimposed blisters. Europhysics Letters, 2009, 86, 54002.	0.7	7
59	Buckling-induced dislocation emission in thin films on substrates. International Journal of Solids and Structures, 2013, 50, 3717-3722.	1.3	7
60	Atomic force microscopy of dislocation locking effects at gold film LiF substrate interface. Scripta Materialia, 2000, 43, 187-192.	2.6	6
61	Stability of wrinkling patterns: from straight-sided to worm-like structures. EPJ Applied Physics, 2002, 17, 173-178.	0.3	6
62	Nanoindentation-induced deformation in Alâ€“Pdâ€“Mn single quasicrystals. Applied Physics Letters, 2006, 88, 073103.	1.5	6
63	Atomic reconstruction of niobium (111) surfaces. Surface Science, 2015, 632, 60-63.	0.8	6
64	Influence of interface steps on the buckle delamination of thin films. Journal of the Mechanics and Physics of Solids, 2019, 132, 103698.	2.3	6
65	Stress heterogeneity of thermally grown polycrystalline nickel oxide layers. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2005, 395, 22-26.	2.6	5
66	Effect of oxidation on the elastic properties of ferromagnetic metals. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 571, 92-94.	2.6	5
67	Redeposition of a straight-sided buckle under pressure. Physical Review E, 2014, 89, 032410.	0.8	5
68	Nanometer undulations on CaF2 cleaved surfaces observed by Atomic Force Microscopy. Scripta Materialia, 1996, 34, 1673-1678.	2.6	4
69	On the relation between Frank-Read source nature and fine slip line structure. EPJ Applied Physics, 1999, 5, 231-236.	0.3	4
70	Short range order heterogeneity on plastic mechanisms in Î³-phase nickel-based superalloys. Philosophical Magazine, 2007, 87, 3893-3904.	0.7	4
71	A stress relaxation mechanism through buckling-induced dislocations in thin films. Journal of Applied Physics, 2010, 108, 026104.	1.1	4
72	Bowâ€“tie slip traces in Fe80Al20 single crystals deformed at room temperature. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2013, 565, 258-261.	2.6	4

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73	Slip-trace-induced vicinal step destabilization. Physical Review B, 2016, 93, .	1.1	4
74	Role of dislocation structure on nanomechanical properties. Journal of Materials Science Letters, 2000, 19, 259-262.	0.5	3
75	Buckling pattern with rings: Evidence of plastic damage in thin films. Philosophical Magazine Letters, 2003, 83, 453-457.	0.5	3
76	Damaging of a soft substrate by cracks propagation through its hard coating: AFM observations and finite element simulation. EPJ Applied Physics, 2003, 22, 15-19.	0.3	3
77	Effect of the dislocation emergence on the mechanical behavior of coated materials: Elastic energy relaxation or adhesion modification. Surface and Coatings Technology, 2007, 202, 1094-1097.	2.2	3
78	Quantitative numerical method for analysing slip traces observed by AFM. Surface Topography: Metrology and Properties, 2013, 1, 015002.	0.9	3
79	Kinetics of anticrossing between slip traces and vicinal steps on crystal surfaces. Acta Materialia, 2019, 175, 206-213.	3.8	3
80	Investigating the secondary buckling of thin films with a model based on elastic rods with hinges. Journal of Mechanics of Materials and Structures, 2009, 4, 121-138.	0.4	3
81	Nano-undulations of nickel thin films on a substrate under compressive stress. Philosophical Magazine Letters, 1999, 79, 497-501.	0.5	2
82	Strain mapping on gold thin film buckling and silicon blistering. Materials Research Society Symposia Proceedings, 2005, 875, 1.	0.1	2
83	Effect of surface on the dissociation of perfect dislocations into Shockley partials describing the herringbone Au(1Â1Â1) surface reconstruction. Philosophical Magazine, 2018, 98, 1594-1607.	0.7	2
84	How slip traces modify the Au(111) reconstruction. Physical Review B, 2019, 99, .	1.1	2
85	A New Insight in the Plasticity of Ni₃Al Intermetallic Compounds Using AFM Observations. Key Engineering Materials, 0, 465, 403-406.	0.4	1
86	A new peeling mechanism of blisters involving surface diffusion. Scripta Materialia, 2011, 65, 672-674.	2.6	1
87	Validation by asymptotic development of the empirical bulge test formula. Surface and Coatings Technology, 2012, 207, 218-220.	2.2	1
88	An atomic-scale insight into Ni3Al slip traces. Materialia, 2020, 9, 100563.	1.3	1
89	Delamination of metal thin films on polymer substrates: From straight-sided blisters to varicose structures. , 0, .		1
90	In Situ Plastic Deformation Study by AFM: Application to Ni Based Alloy Mc2 Phase Î³. Materials Research Society Symposia Proceedings, 1998, 522, 107.	0.1	0

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91	Damaging of a Soft Polymeric Substrate by Crack Propagation Through Its Hard Coating. Materials Research Society Symposia Proceedings, 2002, 734, 271.	0.1	0
92	Buckling of Thin Films on Substrates: From Straight-Sided Wrinkles to Both Worm-Like and Varicose Structures. Materials Research Society Symposia Proceedings, 2002, 749, 1.	0.1	0
93	Post-flambage unilatÃ©ral des films minces sur substrat. European Journal of Computational Mechanics, 2007, 16, 941-955.	0.6	0
94	Contribution of AFM Observations to the Understanding of Ni₃Al Yield Stress Anomaly. Applied Mechanics and Materials, 0, 61, 71-77.	0.2	0
95	Understanding substrate plasticity and buckling of thin films. , 2011, , 317-339.		0
96	Slip trace-induced terrace erosion. Applied Surface Science, 2019, 466, 454-458.	3.1	0
97	Mechanical behaviour of thin films on substrates : Debonding and buckling. European Physical Journal Special Topics, 2000, 10, Pr6-47-Pr6-52.	0.2	0
98	Comportement mÃ©canique des matÃ©riaux revÃªtus sous contrainteÂ: phÃ©nomÃ¨nes de dÃ©cohÃ©sion interfaciale, cloquage et fissuration. European Physical Journal Special Topics, 2003, 106, 121-130.	0.2	0
99	Thin film delamination study duringin situcompressive testing by scanning micro X-ray diffraction. Acta Crystallographica Section A: Foundations and Advances, 2007, 63, s235-s235.	0.3	0