

# Megan J Cordill

## List of Publications by Year in descending order

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138  
papers

2,675  
citations

186254

28  
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254170

43  
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139  
all docs

139  
docs citations

139  
times ranked

1969  
citing authors

#	ARTICLE	IF	CITATIONS
1	Adhesion energies of Cr thin films on polyimide determined from buckling: Experiment and model. Acta Materialia, 2010, 58, 5520-5531.	7.9	121
2	Highly ductile amorphous oxide at room temperature and high strain rate. Science, 2019, 366, 864-869.	12.6	107
3	Adhesion measurements using telephone cord buckles. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2007, 443, 150-155.	5.6	85
4	Fracture and Delamination of Chromium Thin Films on Polymer Substrates. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2010, 41, 870-875.	2.2	79
5	Physics of adhesion. Reports on Progress in Physics, 2006, 69, 2157-2203.	20.1	77
6	The influence of a brittle Cr interlayer on the deformation behavior of thin Cu films on flexible substrates: Experiment and model. Acta Materialia, 2015, 89, 278-289.	7.9	76
7	Recent Developments in Thin Film Adhesion Measurement. IEEE Transactions on Device and Materials Reliability, 2004, 4, 163-168.	2.0	74
8	Reverse plasticity in single crystal silicon nanospheres. International Journal of Plasticity, 2005, 21, 2391-2405.	8.8	65
9	Detailed modelling of delamination buckling of thin films under global tension. Acta Materialia, 2013, 61, 2425-2433.	7.9	60
10	The role of dislocation walls for nanoindentation to shallow depths. International Journal of Plasticity, 2009, 25, 281-301.	8.8	55
11	Electrically reversible cracks in an intermetallic film controlled by an electric field. Nature Communications, 2018, 9, 41.	12.8	53
12	Improved electro-mechanical performance of gold films on polyimide without adhesion layers. Scripta Materialia, 2015, 102, 23-26.	5.2	49
13	Local and non-local behavior and coordinated buckling of CNT turfs. Carbon, 2011, 49, 1430-1438.	10.3	47
14	An elevated temperature study of a Ti adhesion layer on polyimide. Thin Solid Films, 2013, 531, 354-361.	1.8	43
15	Measuring electro-mechanical properties of thin films on polymer substrates. Microelectronic Engineering, 2015, 137, 96-100.	2.4	43
16	The electro-mechanical behavior of sputter-deposited Mo thin films on flexible substrates. Thin Solid Films, 2016, 606, 45-50.	1.8	43
17	Influence of the nitrogen content on the structure and properties of MoNbTaVW high entropy alloy thin films. Journal of Alloys and Compounds, 2021, 850, 156740.	5.5	43
18	The effects of plasticity on adhesion of hard films on ductile interlayers. Acta Materialia, 2005, 53, 2555-2562.	7.9	41

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19	Fragmentation testing for ductile thin films on polymer substrates. Philosophical Magazine Letters, 2013, 93, 618-624.	1.2	38
20	Thickness dependence of the electro-mechanical response of sputter-deposited Mo thin films on polyimide: Insights from in situ synchrotron diffraction tensile tests. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 697, 17-23.	5.6	36
21	Accurate measurement of thin film mechanical properties using nanoindentation. Journal of Materials Research, 2022, 37, 1373-1389.	2.6	36
22	The Nano-Jackhammer effect in probing near-surface mechanical properties. International Journal of Plasticity, 2009, 25, 2045-2058.	8.8	34
23	In situ Study of Cracking and Buckling of Chromium Films on PET Substrates. Experimental Mechanics, 2011, 51, 219-227.	2.0	34
24	Electro-Mechanical Testing of Conductive Materials Used in Flexible Electronics. Frontiers in Materials, 2016, 3, .	2.4	33
25	Thickness effect on the fracture and delamination of titanium films. Thin Solid Films, 2015, 589, 209-214.	1.8	32
26	Electrical Resistance of Metal Films on Polymer Substrates Under Tension. Experimental Techniques, 2016, 40, 303-310.	1.5	32
27	Effects of dynamic indentation on the mechanical response of materials. Journal of Materials Research, 2008, 23, 1604-1613.	2.6	29
28	Scratch induced thin film buckling for quantitative adhesion measurements. Materials and Design, 2018, 155, 203-211.	7.0	29
29	Microstructural characterization of medium entropy alloy thin films. Scripta Materialia, 2020, 177, 22-26.	5.2	28
30	The effect of film thickness variations in periodic cracking: Analysis and experiments. Surface and Coatings Technology, 2011, 206, 1830-1836.	4.8	27
31	Materials Engineering for Flexible Metallic Thin Film Applications. Materials, 2022, 15, 926.	2.9	27
32	Recovery of electrical resistance in copper films on polyethylene terephthalate subjected to a tensile strain. Thin Solid Films, 2014, 552, 141-145.	1.8	26
33	Relationship between mechanical damage and electrical degradation in polymer-supported metal films subjected to cyclic loading. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2016, 662, 157-161.	5.6	25
34	Monotonic and cyclic mechanical reliability of metallization lines on polymer substrates. Journal of Materials Research, 2017, 32, 1760-1769.	2.6	25
35	An Energy Balance Criterion for Nanoindentation-Induced Single and Multiple Dislocation Events. Journal of Applied Mechanics, Transactions ASME, 2006, 73, 327-334.	2.2	24
36	The effect of bending loading conditions on the reliability of inkjet printed and evaporated silver metallization on polymer substrates. Microelectronics Reliability, 2016, 56, 109-113.	1.7	24

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37	Combined TEM and XPS studies of metal - polymer interfaces for space applications. Surface and Coatings Technology, 2017, 332, 368-375.	4.8	24
38	New Insights into Nanoindentation-Based Adhesion Testing. Jom, 2017, 69, 2237-2245.	1.9	24
39	Two-stage cracking of metallic bi-layers on polymer substrates under tension. Scripta Materialia, 2018, 145, 5-8.	5.2	24
40	A boundary constraint energy balance criterion for small volume deformation. Acta Materialia, 2005, 53, 2215-2229.	7.9	23
41	Buckle induced delamination techniques to measure the adhesion of metal dielectric interfaces. Microelectronic Engineering, 2017, 167, 63-68.	2.4	23
42	Flexible film systems: Current understanding and future prospects. Jom, 2010, 62, 9-14.	1.9	22
43	Ductile film delamination from compliant substrates using hard overlayers. Thin Solid Films, 2014, 571, 302-307.	1.8	22
44	Microstructural influence on the cyclic electro-mechanical behaviour of ductile films on polymer substrates. Thin Solid Films, 2017, 644, 166-172.	1.8	22
45	A versatile atomic force microscope integrated with a scanning electron microscope. Review of Scientific Instruments, 2017, 88, 053704.	1.3	21
46	Explicit relationship between electrical and topological degradation of polymer-supported metal films subjected to mechanical loading. Applied Physics Letters, 2017, 110, .	3.3	20
47	Plasticity responses in ultra-small confined cubes and films. Acta Materialia, 2006, 54, 4515-4523.	7.9	19
48	Electrical Resistance Decrease Due to Grain Coarsening Under Cyclic Deformation. Jom, 2014, 66, 598-601.	1.9	19
49	Strain-induced phase transformation of a thin Co film on flexible substrates. Acta Materialia, 2016, 121, 227-233.	7.9	19
50	In-situ observations of the fracture and adhesion of Cu/Nb multilayers on polyimide substrates. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 735, 456-462.	5.6	19
51	Mechanical and optical degradation of flexible optical solar reflectors during simulated low earth orbit thermal cycling. Acta Astronautica, 2020, 175, 277-289.	3.2	19
52	Nanoindentation of thin films: Simulations and experiments. Journal of Materials Research, 2009, 24, 1135-1141.	2.6	18
53	Influence of extreme thermal cycling on metal-polymer interfaces. Microelectronic Engineering, 2017, 167, 17-22.	2.4	18
54	Self-Reducing Silver Ink on Polyurethane Elastomers for the Manufacture of Thin and Highly Stretchable Electrical Circuits. Chemistry of Materials, 2021, 33, 2742-2755.	6.7	18

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55	Microstructure and adhesion of as-deposited and annealed Cu/Ti films on polyimide. International Journal of Materials Research, 2011, 102, 1-6.	0.3	17
56	Deformation behavior of Re alloyed Mo thin films on flexible substrates: In situ fragmentation analysis supported by first-principles calculations. Scientific Reports, 2017, 7, 7374.	3.3	17
57	Geometry and surface state effects on the mechanical response of Au nanostructures. International Journal of Materials Research, 2004, 95, 416-424.	0.8	16
58	Interface failure and adhesion measured by focused ion beam cutting of metal/polymer interfaces. Philosophical Magazine Letters, 2011, 91, 530-536.	1.2	16
59	Rapid fabrication of function-structure-integrated NiTi alloys: Towards a combination of excellent superelasticity and favorable bioactivity. Intermetallics, 2017, 82, 1-13.	3.9	16
60	Exceptional fracture resistance of ultrathin metallic glass films due to an intrinsic size effect. Scientific Reports, 2019, 9, 8281.	3.3	16
61	Determining effective crack lengths from electrical measurements in polymer-supported thin films. Thin Solid Films, 2020, 699, 137906.	1.8	16
62	Adhesion evaluation of thin films to dielectrics in multilayer stacks: A comparison of four-point bending and stressed overlayer technique.. Materials and Design, 2021, 200, 109451.	7.0	16
63	Quantifying improvements in adhesion of platinum films on brittle substrates. Journal of Materials Research, 2004, 19, 1818-1825.	2.6	15
64	Robust mechanical performance of chromium-coated polyethylene terephthalate over a broad range of conditions. Philosophical Magazine, 2012, 92, 3346-3362.	1.6	15
65	Adhesion measurement of a buried Cr interlayer on polyimide. Philosophical Magazine, 2015, 95, 1982-1991.	1.6	15
66	Effect of Microstructure on the Electro-Mechanical Behaviour of Cu Films on Polyimide. Jom, 2016, 68, 1640-1646.	1.9	15
67	Improved fracture resistance of Cu/Mo bilayers with thickness tailoring. Scripta Materialia, 2021, 202, 113994.	5.2	15
68	Length-scale-based hardening model for ultra-small volumes. Journal of Materials Research, 2004, 19, 2812-2821.	2.6	14
69	Thin Film Adhesion of Flexible Electronics Influenced by Interlayers. Advanced Engineering Materials, 2017, 19, 1600665.	3.5	14
70	Role of layer order on the equi-biaxial behavior of Al/Mo bilayers. Scripta Materialia, 2021, 194, 113656.	5.2	14
71	Electro-mechanical performance of thin gold films on polyimide. MRS Advances, 2016, 1, 773-778.	0.9	13
72	Designing a novel functional-structural NiTi/hydroxyapatite composite with enhanced mechanical properties and high bioactivity. Intermetallics, 2017, 84, 35-41.	3.9	13

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73	Nanoprobing Fracture Length Scales. International Journal of Fracture, 2006, 138, 75-100.	2.2	12
74	Accelerated thermo-mechanical fatigue of copper metallizations studied by pulsed laser heating. Microelectronic Engineering, 2017, 167, 110-118.	2.4	12
75	Interfacial mutations in the Al–polyimide system. Surface and Interface Analysis, 2018, 50, 579-586.	1.8	12
76	Sputter deposition of Mo-based multicomponent thin films from rotatable targets: Experiment and simulation. Applied Surface Science, 2018, 455, 1029-1036.	6.1	11
77	A Novel Setup for In Situ Monitoring of Thermomechanically Cycled Thin Film Metallizations. Jom, 2019, 71, 3399-3406.	1.9	10
78	Electromechanical properties of cathodic arc deposited high entropy alloy thin films on polymer substrates. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2019, 37, .	2.1	10
79	Effects of microstructure on the mechanical properties of copper films for high aspect ratio structures. Microsystem Technologies, 2004, 10, 451-455.	2.0	9
80	Novel routes to nanocrystalline mechanical characterization. Jom, 2007, 59, 59-61.	1.9	9
81	Downscaling metal-dielectric interface fracture experiments to sub-micron dimensions: A feasibility study using TEM. Surface and Coatings Technology, 2015, 270, 1-7.	4.8	9
82	Electromigration in Gold Films on Flexible Polyimide Substrates as a Self-healing Mechanism. Materials Research Letters, 2016, 4, 43-47.	8.7	9
83	Annealing effects on the film stress and adhesion of tungsten-titanium barrier layers. Surface and Coatings Technology, 2017, 332, 376-381.	4.8	9
84	Inkjet Printed Wiring Boards with Vertical Interconnect Access on Flexible, Fully Compostable Cellulose Substrates. Advanced Materials Technologies, 2018, 3, 1700250.	5.8	9
85	Direct determination of the area function for nanoindentation experiments. Journal of Materials Research, 2021, 36, 2154-2165.	2.6	9
86	High-Temperature Characterization of Silicon Dioxide Films with Wafer Curvature. Jom, 2015, 67, 2902-2907.	1.9	8
87	Balancing the electro-mechanical and interfacial performance of Mo-based alloy films. Materialia, 2020, 12, 100774.	2.7	8
88	Microstructural Effects on the Interfacial Adhesion of Nanometer-Thick Cu Films on Glass Substrates: Implications for Microelectronic Devices. ACS Applied Nano Materials, 2021, 4, 61-70.	5.0	8
89	Thickness Effects on the Plasticity of Gold Films. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 2154-2159.	2.2	7
90	In-situ Tensile Straining of Metal Films on Polymer Substrates under an AFM. Materials Research Society Symposia Proceedings, 2013, 1527, 1.	0.1	7

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91	Adhesion energy of printed circuit board materials using four-point-bending validated with finite element simulations. Microelectronics Reliability, 2015, 55, 2382-2390.	1.7	7
92	Mechanical and chemical investigation of the interface between tungsten-based metallizations and annealed borophosphosilicate glass. Thin Solid Films, 2015, 583, 170-176.	1.8	7
93	Recent progress in printed 2/3D electronic devices. Proceedings of SPIE, 2015, , .	0.8	7
94	Effect of annealing on the size dependent deformation behavior of thin cobalt films on flexible substrates. Thin Solid Films, 2017, 624, 34-40.	1.8	7
95	Film thickness dependent microstructural changes of thick copper metallizations upon thermal fatigue. Journal of Materials Research, 2017, 32, 2022-2034.	2.6	7
96	Crack deflecting microstructure for improved electro-mechanical lifetimes of flexible systems. Materials Letters, 2019, 244, 47-49.	2.6	7
97	A Mechanical Method for Preparing TEM Samples from Brittle Films on Compliant Substrates. Praktische Metallographie/Practical Metallography, 2011, 48, 408-413.	0.3	7
98	Influence of interlayers on the interfacial behavior of Ag films on polymer substrates. Thin Solid Films, 2022, 742, 139051.	1.8	7
99	Correlation of mechanical damage and electrical behavior of Al/Mo bilayers subjected to bending. Thin Solid Films, 2019, 687, 137480.	1.8	6
100	The transverse and longitudinal elastic constants of pulp fibers in paper sheets. Scientific Reports, 2021, 11, 22411.	3.3	6
101	Characterization of the mechanical behavior of wear surfaces on single crystal nickel by nanomechanical techniques. Journal of Materials Research, 2009, 24, 844-852.	2.6	5
102	Site Specific Microstructural Evolution of Thermo-mechanically Fatigued Copper Films. BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik, 2015, 160, 235-239.	1.0	5
103	A correlative experimental and ab initio approach to improve the fracture behavior of Mo thin films by alloying with Cu. Applied Physics Letters, 2017, 111, 134101.	3.3	5
104	Substrate-Influenced Thermo-Mechanical Fatigue of Copper Metallizations: Limits of Stoney's Equation. Materials, 2017, 10, 1287.	2.9	5
105	Improved electro-mechanical reliability of flexible systems with alloyed Mo-Ta adhesion layers. Thin Solid Films, 2021, 720, 138533.	1.8	5
106	Electropolishing – A Practical Method for Accessing Voids in Metal Films for Analyses. Applied Sciences (Switzerland), 2021, 11, 7009.	2.5	5
107	Electrical and mechanical behaviour of metal thin films with deformation-induced cracks predicted by computational homogenisation. International Journal of Fracture, 2021, 231, 223-242.	2.2	5
108	Linking through-thickness cracks in metallic thin films to in-situ electrical resistance peak broadening. Scripta Materialia, 2022, 212, 114550.	5.2	5

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109	Following crack path selection in multifilm structures with weak and strong interfaces by in situ 4-point-bending. Journal of Materials Research, 2015, 30, 1090-1097.	2.6	4
110	Sputter deposition of NiW films from a rotatable target. Applied Surface Science, 2020, 511, 145616.	6.1	4
111	Finite element-based analysis of buckling-induced plastic deformation. Journal of the Mechanics and Physics of Solids, 2021, 157, 104631.	4.8	4
112	Electrical Resistance of Metal Films on Polymer Substrates Under Tension. Experimental Techniques, 2014, 40, n/a-n/a.	1.5	4
113	Adhesion Thin Ductile Films Using Stressed Overlayers and Nanoindentation. Materials Research Society Symposia Proceedings, 2002, 750, 1.	0.1	3
114	Thermal Plasma Chemical Vapor Deposition of Superhard Nanostructured Si-C-N Coatings. Materials Research Society Symposia Proceedings, 2005, 880, 1.	0.1	3
115	The effect of temperature and strain rate on the periodic cracking of amorphous Al <sub>x</sub> O <sub>y</sub> films on Cu. Surface and Coatings Technology, 2011, 206, 1855-1859.	4.8	3
116	Thickness Effects on the Fracture of Chromium Films on Polyethylene Terephthalate. BHM-Zeitschrift Fuer Rohstoffe Geotechnik Metallurgie Werkstoffe Maschinen-Und Anlagentechnik, 2011, 156, 434-437.	1.0	3
117	Probing the Strain Hardening Response of Small Wear Volumes with Nanoindentation. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2011, 42, 2226-2232.	2.2	3
118	Crack Initiation of Printed Lines Predicted with Digital Image Correlation. Jom, 2018, 70, 1805-1810.	1.9	3
119	33-2:Invited Paper: Evaluating Reliability of Flexible Electronic Materials with Combined Electro-Mechanical Testing Techniques. Digest of Technical Papers SID International Symposium, 2016, 47, 415-418.	0.3	2
120	Molecularly grafted, structurally integrated multifunctional polymer thin films with improved adhesion. Surface and Coatings Technology, 2018, 349, 963-968.	4.8	2
121	In-operando fatigue behavior of gold metallization lines on polyimide substrate. Scripta Materialia, 2020, 186, 48-51.	5.2	2
122	Angular resolved mass-energy analysis of species emitted from a dc magnetron sputtered NiW-target. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2020, 38, 023401.	2.1	2
123	Film thickness and architecture effects in biaxially strained polymer supported Al/Mo bilayers. Materials Today Communications, 2022, 31, 103455.	1.9	2
124	Tribological investigations of Mo films deposited on thin polyimide substrates. Surface and Coatings Technology, 2022, 442, 128549.	4.8	2
125	Statistical Quantification of the Impact of Surface Preparation on Yield Point Phenomena in Nickel. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2014, 45, 4307-4315.	2.2	1
126	In-situ AFM and SEM Investigation of Slip Steps Evolving during Nanoindentation. Microscopy and Microanalysis, 2015, 21, 2343-2344.	0.4	1



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127	10 <sup>th</sup> Invited Paper: An In Depth Comparison of Methods to Evaluate Bending Failure for Flexible Electronics. Digest of Technical Papers SID International Symposium, 2021, 52, 111-114.	0.3	1
128	Thin-film adhesion: A comparative study between colored picosecond acoustics and spontaneous buckles analysis. Surface and Coatings Technology, 2021, 421, 127485.	4.8	1
129	Nanoprobng fracture length scales. , 2006, , 75-100.		1
130	A measurement structure for in-situ electrical monitoring of cyclic delamination. Surface and Coatings Technology, 2022, 445, 128715.	4.8	1
131	Size Effects on Yield Instabilities in Nickel. Materials Research Society Symposia Proceedings, 2006, 976, 1.	0.1	0
132	Adhesion of printed circuit boards with bending and the effect of reflow cycles. , 2013, , .		0
133	Improved Understanding of Material Behavior using Correlative In-situ Techniques. Microscopy and Microanalysis, 2017, 23, 792-793.	0.4	0
134	Mechanical Behavior at the Nanoscale: What's in your Toolbox?. Jom, 2018, 70, 1065-1067.	1.9	0
135	New Developments in Nanomechanical Methods. Jom, 2019, 71, 3340-3342.	1.9	0
136	Griffith's Legacy to Alloy Design and Beyond. Jom, 2021, 73, 1579-1581.	1.9	0
137	Bridging Fidelities to Predict Nanoindentation Tip Radii Using Interpretable Deep Learning Models. Jom, 0, , 1.	1.9	0
138	Geometry and surface state effects on the mechanical response of Au nanostructures. International Journal of Materials Research, 2022, 95, 416-424.	0.3	0