Alessandro Molle

List of Publications by Year
in descending order

125 papers	5,732 citations	159585 30 h-index	76900 74 g-index
130 all docs	130 docs citations	130 times ranked	6093 citing authors

#	Article	IF	Citations
1	Silicene field-effect transistors operating at room temperature. Nature Nanotechnology, 2015, 10, 227-231.	31.5	1,429
2	Buckled two-dimensional Xene sheets. Nature Materials, 2017, 16, 163-169.	27.5	641
3	Twoâ€Dimensional Si Nanosheets with Local Hexagonal Structure on a MoS₂ Surface. Advanced Materials, 2014, 26, 2096-2101.	21.0	311
4	Local Electronic Properties of Corrugated Silicene Phases. Advanced Materials, 2012, 24, 5088-5093.	21.0	278
5	Silicene, silicene derivatives, and their device applications. Chemical Society Reviews, 2018, 47, 6370-6387.	38.1	261
6	Evidence for graphite-like hexagonal AlN nanosheets epitaxially grown on single crystal Ag(111). Applied Physics Letters, 2013, 103, .	3.3	251
7	Silicene: a review of recent experimental and theoretical investigations. Journal of Physics Condensed Matter, 2015, 27, 253002.	1.8	180
8	Getting through the Nature of Silicene: An sp²â€“sp³ Two-Dimensional Silicon Nanosheet. Journal of Physical Chemistry C, 2013, 117, 16719-16724.	3.1	163
9	Hindering the Oxidation of Silicene with Nonâ€Reactive Encapsulation. Advanced Functional Materials, 2013, 23, 4340-4344.	14.9	161
10	Two-dimensional silicon: the advent of silicene. 2D Materials, 2016, 3, 012001.	4.4	155
11	In situ chemical and structural investigations of the oxidation of Ge(001) substrates by atomic oxygen. Applied Physics Letters, 2006, 89, 083504.	3.3	127
12	Silicon Nanosheets: Crossover between Multilayer Silicene and Diamond-like Growth Regime. ACS Nano, 2017, 11, 3376-3382.	14.6	61
13	Novel near-infrared emission from crystal defects in MoS2 multilayer flakes. Nature Communications, 2016, 7, 13044.	12.8	60
14	Towards a uniform and large-scale deposition of MoS₂nanosheets via sulfurization of ultra-thin Mo-based solid films. Nanotechnology, 2016, 27, 175703.	2.6	59
15	Nanocrystal Formation and Faceting Instability in Al(110) Homoepitaxy:TrueUpward Adatom Diffusion at Step Edges and Island Corners. Physical Review Letters, 2003, 91, 016102.	7.8	55
16	Engineering the electronic properties of silicene by tuning the composition of MoX ₂ and GaX (X = S,Se,Te) chalchogenide templates. 2D Materials, 2014, 1, 011010.	4.4	53
17	Anisotropic MoS₂ Nanosheets Grown on Selfâ€Organized Nanopatterned Substrates. Advanced Materials, 2017, 29, 1605785.	21.0	53
18	Designer Shape Anisotropy on Transitionâ€Metalâ€Dichalcogenide Nanosheets. Advanced Materials, 2018, 30, 1705615.	21.0	52

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19	Vibrational properties of epitaxial silicene layers on (111) Ag. Applied Surface Science, 2014, 291, 113-117.	6.1	49
20	The Xenes Generations: A Taxonomy of Epitaxial Singleâ€Element 2D Materials. Physica Status Solidi - Rapid Research Letters, 2020, 14, 1900439.	2.4	42
21	Carbon Monoxide Dissociation on Rh Nanopyramids. Physical Review Letters, 2006, 97, 056103.	7.8	41
22	Cubic-to-monoclinic phase transition during the epitaxial growth of crystalline Gd2O3 films on Ge(001) substrates. Applied Physics Letters, 2007, 90, 193511.	3.3	41
23	Evidence of dangling bond electrical activity at the Ge/oxide interface. Applied Physics Letters, 2008, 93, .	3.3	41
24	Engineering the Growth of MoS₂ via Atomic Layer Deposition of Molybdenum Oxide Film Precursor. Advanced Electronic Materials, 2016, 2, 1600330.	5.1	41
25	Atomic layer deposition of LaxZr1â^'xO2â^'Îˆâ€˜(x=0.25) high-k dielectrics for advanced gate stacks. Applied Physics Letters, 2009, 94, .	3.3	37
26	Optical response and ultrafast carrier dynamics of the silicene-silver interface. Physical Review B, 2015, 92, .	3.2	37
27	Exploring the morphological and electronic properties of silicene superstructures. Applied Surface Science, 2014, 291, 109-112.	6.1	34
28	Optical Conductivity of Two-Dimensional Silicon: Evidence of Dirac Electrodynamics. Nano Letters, 2018, 18, 7124-7132.	9.1	34
29	Thermally induced permittivity enhancement in La-doped ZrO2 grown by atomic layer deposition on Ge(100). Applied Physics Letters, 2009, 95, 122902.	3.3	31
30	Influence of the oxidizing species on the Ge dangling bonds at the (100)Ge/GeO2 interface. Applied Physics Letters, 2010, 96, .	3.3	31
31	Formation and stability of germanium oxide induced by atomic oxygen exposure. Materials Science in Semiconductor Processing, 2006, 9, 673-678.	4.0	28
32	Electron Confinement at the Si/MoS₂ Heterosheet Interface. Advanced Materials Interfaces, 2016, 3, 1500619.	3.7	28
33	Ge-based interface passivation for atomic layer deposited La-doped ZrO2 on III-V compound (GaAs,In0.15Ga0.85As) substrates. Applied Physics Letters, 2009, 95, 023507.	3.3	25
34	Phase Stabilization of Al:HfO₂ Grown on In_xGa_{1â€“x}As Substrates (x = 0, 0.15, 0.53) via Trimethylaluminum-Based Atomic Layer Deposition. ACS Applied Materials & Interfaces, 2014, 6, 3455-3461.	8.0	25
35	Stability and universal encapsulation of epitaxial Xenes. Faraday Discussions, 2021, 227, 171-183.	3.2	24
36	Theoretical aspects of graphene-like group IV semiconductors. Applied Surface Science, 2014, 291, 98-103.	6.1	23

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37	Nucleation and temperature-driven phase transitions of silicene superstructures on Ag(1â€‰1â€‰1). Journal of Physics Condensed Matter, 2015, 27, 255005.	1.8	23
38	Twoâ€Dimensional Siliceneâ€“Stanene Heterostructures by Epitaxy. Advanced Functional Materials, 2021, 31, 2102797.	14.9	23
39	Self-Organized Formation of Rhomboidal Nanopyramids on fcc(110) Metal Surfaces. Physical Review Letters, 2004, 93, 256103.	7.8	22
40	Structural and electrical properties of atomic layer deposited Al-doped ZrO2 films and of the interface with TaN electrode. Journal of Applied Physics, 2012, 112, .	2.5	22
41	Disassembling Silicene from Native Substrate and Transferring onto an Arbitrary Target Substrate. Advanced Functional Materials, 2020, 30, 2004546.	14.9	21
42	Broadband and Tunable Light Harvesting in Nanorippled MoS₂ Ultrathin Films. ACS Applied Materials & Interfaces, 2021, 13, 13508-13516.	8.0	21
43	Transitivity of band offsets between semiconductor heterojunctions and oxide insulators. Applied Physics Letters, 2011, 99, .	3.3	20
44	Evidence of Plasmon Enhanced Charge Transfer in Largeâ€Area Hybrid Auâ€“MoS₂ Metasurface. Advanced Optical Materials, 2020, 8, 2000653.	7.3	20
45	Application-Oriented Growth of a Molybdenum Disulfide (MoS2) Single Layer by Means of Parametrically Optimized Chemical Vapor Deposition. Materials, 2020, 13, 2786.	2.9	20
46	Growth study of GexSbyTez deposited by MOCVD under nitrogen for non-volatile memory applications. Journal of Crystal Growth, 2008, 310, 5053-5057.	1.5	19
47	Electronic properties at the oxide interface with silicon and germanium through x-ray induced oxide charging. Applied Physics Letters, 2012, 101, 211606.	3.3	19
48	Structural, optical and compositional stability of MoS ₂ multi-layer flakes under high dose electron beam irradiation. 2D Materials, 2016, 3, 025024.	4.4	19
49	(Invited) Xenes: A New Emerging Two-Dimensional Materials Platform for Nanoelectronics. ECS Transactions, 2016, 75, 163-173.	0.5	19
50	Ultra-broadband photon harvesting in large-area few-layer MoS₂ nanostripe gratings. Nanoscale, 2020, 12, 24385-24393.	5.6	18
51	Stability and interface quality of GeO2 films grown on Ge by atomic oxygen assisted deposition. Journal of Chemical Physics, 2008, 129, 011104.	3.0	17
52	Ultrafast Anisotropic Exciton Dynamics in Nanopatterned MoS₂ Sheets. ACS Photonics, 2018, 5, 3363-3371.	6.6	17
53	Effect of oxygen on the electronic configuration of Gd2O3âˆ•Ge heterojunctions. Applied Physics Letters, 2008, 92, 042106.	3.3	16
54	Effects of surface passivation during atomic layer deposition of Al2O3 on In0.53Ga0.47As substrates. Microelectronic Engineering, 2011, 88, 431-434.	2.4	16

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55	Atomic layer-deposited Alâ€“HfO2/SiO2 bi-layers towards 3D charge trapping non-volatile memory. Thin Solid Films, 2013, 533, 9-14.	1.8	16
56	Large-area patterning of substrate-conformal MoS2 nano-trenches. Nano Research, 2019, 12, 1851-1854.	10.4	16
57	Time evolution of the local slope during Cu(110) ion sputtering. Physical Review B, 2003, 68, .	3.2	15
58	High permittivity materials for oxide gate stack in Ge-based metal oxide semiconductor capacitors. Thin Solid Films, 2010, 518, S96-S103.	1.8	15
59	Evidence of Trigonal Dangling Bonds at the Ge(111)/Oxide Interface by Electrically Detected Magnetic Resonance. Physical Review Letters, 2013, 110, 206101.	7.8	15
60	Embedding epitaxial (blue) phosphorene in between device-compatible functional layers. Nanoscale, 2019, 11, 18232-18237.	5.6	15
61	Interfacial dynamics of the rhomboidal pyramid pattern on ion-eroded Cu(110). Physical Review B, 2006, 73, .	3.2	14
62	Emerging Dirac materials for THz plasmonics. Applied Materials Today, 2020, 20, 100732.	4.3	14
63	Changing the Electronic Polarizability of Monolayer MoS₂ by Peryleneâ€Based Seeding Promoters. Advanced Materials Interfaces, 2020, 7, 2000791.	3.7	13
64	The interface between Gd2O3 films and Ge(001): A comparative study between molecular and atomic oxygen mediated growths. Journal of Applied Physics, 2007, 102, 034513.	2.5	12
65	Evidence of Native Cs Impurities and Metalâ€“Insulator Transition in MoS₂ Natural Crystals. Advanced Electronic Materials, 2016, 2, 1600091.	5.1	12
66	Ambient Pressure Chemical Vapor Deposition of Flat and Vertically Aligned MoS2 Nanosheets. Nanomaterials, 2022, 12, 973.	4.1	12
67	Reconstruction dependent reactivity of As-decapped In0.53Ga0.47As(001) surfaces and its influence on the electrical quality of the interface with Al2O3 grown by atomic layer deposition. Applied Physics Letters, 2011, 99, .	3.3	11
68	Atomic Layer Deposition of Al-Doped ZrO2Thin Films as Gate Dielectric for In0.53Ga0.47As. Journal of the Electrochemical Society, 2012, 159, H220-H224.	2.9	11
69	Hydrophilic Character of Single-Layer MoS₂ Grown on Ag(111). Journal of Physical Chemistry C, 2021, 125, 9479-9485.	3.1	11
70	Dense arrays of Co nanocrystals epitaxially grown on ion-patterned Cu(110) substrates. Applied Physics Letters, 2005, 86, 141906.	3.3	10
71	Influence of lattice parameters on the dielectric constant of tetragonal ZrO2 and La-doped ZrO2 crystals in thin films deposited by atomic layer deposition on Ge(001). Applied Physics Letters, 2011, 99, 232907.	3.3	10
72	Atomic oxygen-assisted molecular beam deposition of Gd2O3 films for ultra-scaled Ge-based electronic devices. Materials Science in Semiconductor Processing, 2008, 11, 236-240.	4.0	9

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73	Structure and interface bonding of GeO2âˆ•Geâˆ•In0.15Ga0.85As heterostructures. Applied Physics Letters, 2008, 93, 133504.	3.3	9
74	Prolonged Lifetime in Nanocrystal Light-Emitting Diodes Incorporating MoS2-Based Conjugated Polyelectrolyte Interfacial Layer as an Alternative to PEDOT:PSS. ACS Applied Electronic Materials, 2020, 2, 1186-1192.	4.3	9
75	Impact of post deposition annealing in the electrically active traps at the interface between Ge(001) substrates and LaGeOx films grown by molecular beam deposition. Journal of Applied Physics, 2011, 110, 084504.	2.5	8
76	Magnetic resonance spectroscopy of defects at the dielectric-semiconductor interface: Ge substrates and Si nanowires (invited). Microelectronic Engineering, 2011, 88, 1482-1487.	2.4	8
77	Thickness determination of anisotropic van der Waals crystals by raman spectroscopy: the case of black phosphorus. Nanotechnology, 2020, 31, 415703.	2.6	8
78	Detection of the Tetragonal Phase in Atomic Layer Deposited La-Doped ZrO2 Thin Films on Germanium. Journal of the Electrochemical Society, 2011, 158, G194.	2.9	7
79	(Invited) Silicene: Silicon at the Two Dimensional Limit and Its Applications to Nanoelectronics. ECS Transactions, 2016, 75, 703-709.	0.5	7
80	Optical Properties of Stanene-like Nanosheets on Al₂O₃(0001): Implications for Xene Photonics. ACS Applied Nano Materials, 2021, 4, 2351-2356.	5.0	7
81	Engineering Epitaxial Silicene on Functional Substrates for Nanotechnology. Research, 2019, 2019, 8494606.	5.7	7
82	Self-organised synthesis of Rh nanostructures with tunable chemical reactivity. Nanoscale Research Letters, 2007, 2, 251-264.	5.7	6
83	Epitaxial growth of cubic Gd₂O₃thin films on Ge substrates. Journal of Physics: Conference Series, 2008, 100, 042048.	0.4	6
84	Interface analysis of Ge ultra thin layers intercalated between GaAs substrates and oxide stacks. Thin Solid Films, 2010, 518, S123-S127.	1.8	6
85	Vapor phase epitaxy of antimonene-like nanocrystals on germanium by an MOCVD process. Applied Surface Science, 2021, 535, 147729.	6.1	6
86	Geometrical Engineering of Giant Optical Dichroism in Rippled MoS₂ Nanosheets. Advanced Optical Materials, 2021, 9, 2001408.	7.3	6
87	Improved Performance of In$_{0.53}$Ga$_{0.47}$As-Based Metalâ€“Oxideâ€“Semiconductor Capacitors with Al:ZrO$_{2}$ Gate Dielectric Grown by Atomic Layer Deposition. Applied Physics Express, 2011, 4, 094103.	2.4	5
88	(Invited) Structural and Chemical Stabilization of the Epitaxial Silicene. ECS Transactions, 2013, 58, 217-227.	0.5	5
89	Tailoring the Phase in Nanoscale MoTe₂ Grown by Barrier-Assisted Chemical Vapor Deposition. Crystal Growth and Design, 2021, 21, 2970-2976.	3.0	5
90	Influence of the oxidation temperature on the non-trigonal Ge dangling bonds at the (100)Ge/GeO2 interface. Microelectronic Engineering, 2011, 88, 388-390.	2.4	4

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91	Al2O3 stacks on In0.53Ga0.47As substrates: In situ investigation of the interface. Microelectronic Engineering, 2011, 88, 435-439.	2.4	4
92	Effect of Electric Dipoles on Fermi Level Positioning at the Interface between Ultrathin Al₂O₃ Films and Differently Reconstructed In_{0.53}Ga_{0.47}As(001) Surfaces. Journal of Physical Chemistry C, 2012, 116, 18746-18751.	3.1	4
93	Bonding Character and Magnetism at the Interface Between Fe and MoS₂ Nanosheets. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1800015.	1.8	4
94	Probing the Laser Ablation of Black Phosphorus by Raman Spectroscopy. Journal of Physical Chemistry C, 2021, 125, 8704-8711.	3.1	4
95	Temperature dependence of rippled corrugations induced on the Rh(110) surface via ion sputtering. Nuclear Instruments & Methods in Physics Research B, 2005, 230, 555-559.	1.4	3
96	(Invited) Active Trap Determination at the Interface of Ge and In0.53Ga0.47 as Substrates with Dielectric Layers. ECS Transactions, 2011, 41, 203-221.	0.5	3
97	Ultrafast carrier dynamics of epitaxial silicene. , 2017, , .		3
98	Growth of 2D-molybdenum disulfide on top of magnetite and iron by chemical methods. Thin Solid Films, 2020, 701, 137943.	1.8	3
99	Optothermal Raman Spectroscopy of Black Phosphorus on a Gold Substrate. Nanomaterials, 2022, 12, 1410.	4.1	3
100	Chemical nature of the passivation layer depending on the oxidizing agent in Gd2O3/GeO2/Ge stacks grown by molecular beam deposition. Microelectronic Engineering, 2011, 88, 403-406.	2.4	2
101	Role of the Oxygen Content in the GeO2Passivation of Ge Substrates as a Function of the Oxidizer. Journal of the Electrochemical Society, 2012, 159, H555-H559.	2.9	2
102	A Viable Route to Enhance Permittivity of Gate Dielectrics on In_{0.53}Ga_{0.47}As(001): Trimethylaluminum-Based Atomic Layer Deposition of MeO₂(Me = Zr, Hf). ECS Journal of Solid State Science and Technology, 2013, 2, P395-P399.	1.8	2
103	(Invited) Defects and Dopants in Silicon and Germanium Nanowires. ECS Transactions, 2015, 69, 69-79.	0.5	2
104	Hybrid MoS2/PEDOT:PSS transporting layers for interface engineering of nanoplatelet-based light-emitting diodes. Dalton Transactions, 2021, 50, 9208-9214.	3.3	2
105	Ultrafast Dynamics in Epitaxial Silicene on Ag(111). Springer Proceedings in Physics, 2015, , 329-332.	0.2	2
106	Closing the THz gap with Dirac semimetals. Light: Science and Applications, 2022, 11, 124.	16.6	2
107	Atomic Layer Deposition of Al-Doped ZrO2 Thin Films for Advanced Gate Stack on III-V Substrates. ECS Transactions, 2011, 35, 431-440.	0.5	1
108	Detection of the Tetragonal and Monoclinic Phases and their Role on the Dielectric Constant of Atomic Layer Deposited La-Doped ZrO2 Thin Films on Ge (001). ECS Transactions, 2011, 35, 481-490.	0.5	1

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109	Trimethylaluminum-based Atomic Layer Deposition of MO2 (M=Zr, Hf): Gate Dielectrics on In0.53Ga0.47As(001) Substrates. ECS Transactions, 2013, 50, 11-19.	0.5	1
110	Optical characterization of anisotropic MoS<inf>2</inf> nanosheets. , 2017, , .		1
111	Encapsulated Silicene Field-Effect Transistors. Nanoscience and Technology, 2018, , 235-254.	1.5	1
112	Two-dimensional Xenes and their device concepts for future micro- and nanoelectronics and energy applications. , 2020, , 181-219.		1
113	Applications in opto-electronics: general discussion. Faraday Discussions, 2021, 227, 184-188.	3.2	1
114	How Oxygen Absorption Affects the Al 2 O 3 â€Encapsulated Blue Phosphoreneâ€“Au Alloy. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100217.	2.4	1
115	Silicene in the Flatland. Carbon Nanostructures, 2017, , 137-152.	0.1	1
116	Nanostructuring Rh(110) Surfaces by Ion Etching. Materials Research Society Symposia Proceedings, 2006, 960, 1.	0.1	0
117	Interface quality of atomic layer deposited La-doped ZrO2 films on Ge-passivated In0.15Ga0.85As substrates. Materials Research Society Symposia Proceedings, 2009, 1194, 80.	0.1	0
118	Ultrafast dynamics in epitaxial silicene on Ag(111). , 2014, , .		0
119	Effect on Al:MO2/In0.53Ga0.47As interface (M=Hf, Zr) of trimethyl-aluminum pre-treatment during atomic layer deposition. Thin Solid Films, 2014, 563, 44-49.	1.8	0
120	Electrically detected magnetic resonance study of the Ge dangling bonds at the Ge(111)/GeO2 interface after capping with Al2O3 layer. Applied Surface Science, 2014, 291, 3-5.	6.1	0
121	MOS2Impurities: Evidence of Native Cs Impurities and Metal-Insulator Transition in MoS2Natural Crystals (Adv. Electron. Mater. 6/2016). Advanced Electronic Materials, 2016, 2, .	5.1	0
122	3-Dimensional graphene-like structures and applications: general discussion. Faraday Discussions, 2021, 227, 359-382.	3.2	0
123	(Invited) Xenes: A New Emerging Two-Dimensional Materials Platform for Nanoelectronics. ECS Meeting Abstracts, 2016, , .	0.0	0
124	(Invited) Silicene: Silicon at the Two Dimensional Limit and Its Applications to Nanoelectronics. ECS Meeting Abstracts, 2016, , .	0.0	0
125	Tuning the transient opto-electronic properties of few-layer MoS2 nanosheets via substrate nano-patterning. EPJ Web of Conferences, 2020, 238, 07006.	0.3	0