Lourdes Pelaz

List of Publications by Year
in descending order

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122 papers	1,854 citations	331259 21 h-index	288905 40 g-index
126 all docs	126 docs citations	126 times ranked	1071 citing authors

#	Article	IF	Citations
1	Ion-beam-induced amorphization and recrystallization in silicon. Journal of Applied Physics, 2004, 96, 5947-5976.	1.1	327
2	B cluster formation and dissolution in Si: A scenario based on atomistic modeling. Applied Physics Letters, 1999, 74, 3657-3659.	1.5	149
3	Stability of defects in crystalline silicon and their role in amorphization. Physical Review B, 2001, 64, .	1.1	105
4	Atomistic modeling of amorphization and recrystallization in silicon. Applied Physics Letters, 2003, 82, 2038-2040.	1.5	70
5	Atomistic Modeling of Point and Extended Defects in Crystalline Materials. Materials Research Society Symposia Proceedings, 1998, 532, 43.	0.1	69
6	Microscopic Description of the Irradiation-Induced Amorphization in Silicon. Physical Review Letters, 2003, 91, 135504.	2.9	61
7	Activation and deactivation of implanted B in Si. Applied Physics Letters, 1999, 75, 662-664.	1.5	60
8	Modeling of the ion mass effect on transient enhanced diffusion: Deviation from the â€œ+1â€•model. Applied Physics Letters, 1998, 73, 1421-1423.	1.5	58
9	Molecular dynamics study of the configurational and energetic properties of the silicon self-interstitial. Physical Review B, 2005, 71, .	1.1	55
10	Boron diffusion in amorphous silicon and the role of fluorine. Applied Physics Letters, 2004, 84, 4283-4285.	1.5	47
11	Modeling of the effects of dose, dose rate, and implant temperature on transient enhanced diffusion. Applied Physics Letters, 1999, 74, 2017-2019.	1.5	43
12	Atomistic modeling of deactivation and reactivation mechanisms in high-concentration boron profiles. Applied Physics Letters, 2003, 83, 4166-4168.	1.5	34
13	Atomistic analysis of the evolution of boron activation during annealing in crystalline and preamorphized silicon. Journal of Applied Physics, 2005, 97, 103520.	1.1	34
14	Modeling of damage generation mechanisms in silicon at energies below the displacement threshold. Physical Review B, 2006, 74, .	1.1	34
15	Front-end process modeling in silicon. European Physical Journal B, 2009, 72, 323-359.	0.6	32
16	Atomistic analysis of defect evolution and transient enhanced diffusion in silicon. Journal of Applied Physics, 2003, 94, 1013-1018.	1.1	30
17	Characterization of octadecaborane implantation into Si using molecular dynamics. Physical Review B, 2006, 74, .	1.1	24
18	The laser annealing induced phase transition in silicon: a molecular dynamics study. Nuclear Instruments & Methods in Physics Research B, 2004, 216, 57-61.	0.6	23

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19	Physical insight into boron activation and redistribution during annealing after low-temperature solid phase epitaxial regrowth. Applied Physics Letters, 2006, 88, 191917.	1.5	22
20	Improved atomistic damage generation model for binary collision simulations. Journal of Applied Physics, 2009, 105, 083530.	1.1	22
21	Kinetics of large B clusters in crystalline and preamorphized silicon. Journal of Applied Physics, 2011, 110, .	1.1	22
22	Atomistic modeling of dopant implantation and annealing in Si: damage evolution, dopant diffusion and activation. Computational Materials Science, 2005, 33, 92-105.	1.4	21
23	Molecular dynamics simulations of damage production by thermal spikes in Ge. Journal of Applied Physics, 2012, 111, 033519.	1.1	21
24	Enhanced low temperature electrical activation of B in Si. Applied Physics Letters, 2003, 82, 215-217.	1.5	19
25	The curious case of thin-body Ge crystallization. Applied Physics Letters, 2011, 99, 131910.	1.5	19
26	Dose, Energy, and Ion Species Dependence of the Effective Plus Factor for Transient Enhanced Diffusion. Journal of the Electrochemical Society, 2000, 147, 3494.	1.3	18
27	Binding energy of vacancy clusters generated by high-energy ion implantation and annealing of silicon. Applied Physics Letters, 2001, 79, 1273-1275.	1.5	18
28	Recrystallization of atomically balanced amorphous pockets in Si: A source of point defects. Physical Review B, 2007, 76, .	1.1	18
29	Kinetic Monte Carlo simulations for transient thermal fields: Computational methodology and application to the submicrosecond laser processes in implanted silicon. Physical Review E, 2012, 86, 036705.	0.8	18
30	Modeling of defects, dopant diffusion and clustering in silicon. Journal of Computational Electronics, 2014, 13, 40-58.	1.3	18
31	Role of silicon interstitials in boron cluster dissolution. Applied Physics Letters, 2005, 86, 031908.	1.5	16
32	Elucidating the atomistic mechanisms driving self-diffusion of amorphous Si during annealing. Physical Review B, 2011, 83, .	1.1	16
33	Molecular dynamics characterization of as-implanted damage in silicon. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2005, 124-125, 372-375.	1.7	15
34	The Poole-Frenkel effect in 6H-SiC diode characteristics. IEEE Transactions on Electron Devices, 1994, 41, 587-591.	1.6	14
35	Atomistic analysis of the annealing behavior of amorphous regions in silicon. Journal of Applied Physics, 2007, 101, 093518.	1.1	14
36	Kinetic Monte Carlo simulations of boron activation in implanted Si under laser thermal annealing. Applied Physics Express, 2014, 7, 021301.	1.1	14

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37	Structural transformations from point to extended defects in silicon: A molecular dynamics study. Physical Review B, 2008, 78, .	1.1	13
38	Insights on the atomistic origin of X and W photoluminescence lines in<i>c</i>-Si from<i>ab initio</i>simulations. Journal Physics D: Applied Physics, 2016, 49, 075109.	1.3	10
39	Continuum treatment of spatial correlation in damage annealing. Nuclear Instruments & Methods in Physics Research B, 1999, 153, 172-176.	0.6	9
40	Boron activation and redistribution during thermal treatments after solid phase epitaxial regrowth. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2005, 124-125, 205-209.	1.7	9
41	Boron pocket and channel deactivation in nMOS transistors with SPER junctions. IEEE Transactions on Electron Devices, 2006, 53, 71-77.	1.6	9
42	Self-trapping in B-doped amorphous Si: Intrinsic origin of low acceptor efficiency. Physical Review B, 2010, 81, .	1.1	9
43	Molecular dynamics simulation of the regrowth of nanometric multigate Si devices. Journal of Applied Physics, 2012, 111, 034302.	1.1	9
44	Atomistic simulations in Si processing: Bridging the gap between atoms and experiments. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2005, 124-125, 72-80.	1.7	8
45	Atomistic modeling of impurity ion implantation in ultra-thin-body Si devices. , 2008, , .		8
46	Monte Carlo modeling of amorphization resulting from ion implantation in Si. Computational Materials Science, 2003, 27, 1-5.	1.4	7
47	Atomistic modeling of defect evolution in Si for amorphizing and subamorphizing implants. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2004, 114-115, 82-87.	1.7	7
48	Evolution of boron-interstitial clusters in preamorphized silicon without the contribution of end-of-range defects. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 154-155, 247-251.	1.7	7
49	Atomistic process modeling based on Kinetic Monte Carlo and Molecular Dynamics for optimization of advanced devices. , 2009, , .		7
50	Molecular dynamics simulation of the early stages of self-interstitial clustering in silicon. Materials Science in Semiconductor Processing, 2016, 42, 235-238.	1.9	7
51	W and X Photoluminescence Centers in Crystalline Si: Chasing Candidates at Atomic Level Through Multiscale Simulations. Journal of Electronic Materials, 2018, 47, 5045-5049.	1.0	7
52	Avalanche breakdown of high-voltage p-n junctions of SiC. Microelectronics Journal, 1996, 27, 43-51.	1.1	6
53	Atomistic Modeling of Complex Silicon Processing Scenarios. Materials Research Society Symposia Proceedings, 2000, 610, 1111.	0.1	6
54	Molecular dynamics study of amorphous pocket formation in Si at low energies and its application to improve binary collision models. Nuclear Instruments & Methods in Physics Research B, 2007, 255, 110-113.	0.6	6

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55	Ultrafast Generation of Unconventional<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mo stretchy="false">{</mml:mo><mml:mn>001</mml:mn><mml:mo stretchy="false">}</mml:mo></mml:mrow></mml:math>Loops in Si. Physical Review Letters, 2017, 119, 205503.	2.9	6
56	Low energy ion implantation simulation using a modified binary collision approximation code. Nuclear Instruments & Methods in Physics Research B, 1995, 102, 228-231.	0.6	5
57	Atomistic modeling of the effects of dose and implant temperature on dopant diffusion and amorphization in Si. Nuclear Instruments & Methods in Physics Research B, 2001, 180, 12-16.	0.6	5
58	A novel technique for the structural and energetic characterization of lattice defects in the molecular dynamics framework. Computational Materials Science, 2005, 33, 112-117.	1.4	5
59	Molecular dynamics study of damage generation mechanisms in silicon at the low energy regime. , 2007, , .		5
60	Improved physical models for advanced silicon device processing. Materials Science in Semiconductor Processing, 2017, 62, 62-79.	1.9	5
61	Detailed computer simulation of ion implantation processes into crystals. Materials Science and Technology, 1995, 11, 1191-1193.	0.8	4
62	The role of the bond defect on silicon amorphization: a molecular dynamics study. Computational Materials Science, 2003, 27, 6-9.	1.4	4
63	The role of silicon interstitials in the deactivation and reactivation of high concentration boron profiles. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2004, 114-115, 193-197.	1.7	4
64	Amorphous layer depth dependence on implant parameters during Si self-implantation. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2005, 124-125, 379-382.	1.7	4
65	Codiffusion of Phosphorus and Carbon in Preamorphized Ultrashallow Junctions. Electrochemical and Solid-State Letters, 2012, 15, H202.	2.2	4
66	{001} loops in silicon unraveled. Acta Materialia, 2019, 166, 192-201.	3.8	4
67	On the anomalous generation of {0â€‰0â€‰1} loops during laser annealing of ion-implanted silicon. Nuclear Instruments & Methods in Physics Research B, 2019, 458, 179-183.	0.6	4
68	Generation of amorphous Si structurally compatible with experimental samples through the quenching process: A systematic molecular dynamics simulation study. Journal of Non-Crystalline Solids, 2019, 503-504, 20-27.	1.5	4
69	Atomistic modeling of ion beam induced amorphization in silicon. Nuclear Instruments & Methods in Physics Research B, 2004, 216, 41-45.	0.6	3
70	Boron diffusion and activation in SOI and bulk Si: The role of the buried interface. Nuclear Instruments & Methods in Physics Research B, 2007, 257, 152-156.	0.6	3
71	Evolution of fluorine and boron profiles during annealing in crystalline Si. Journal of Vacuum Science & Technology B, 2008, 26, 377.	1.3	3
72	Simulation of p-n junctions: Present and future challenges for technologies beyond 32 nm. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2010, 28, C1A1-C1A6.	0.6	3

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73	A detailed approach for the classification and statistical analysis of irradiation induced defects. Nuclear Instruments & Methods in Physics Research B, 2015, 352, 156-159.	0.6	3
74	Atomistic simulations of acceptor removal in p-type Si irradiated with neutrons. Nuclear Instruments & Methods in Physics Research B, 2022, 512, 42-48.	0.6	3
75	Saturation of generationâ€recombination current for very small recombination times. Journal of Applied Physics, 1994, 76, 7384-7389.	1.1	2
76	Use of transient enhanced diffusion to tailor boron out-diffusion. IEEE Transactions on Electron Devices, 2000, 47, 1401-1405.	1.6	2
77	Modeling of Dopant and Defect Interactions in Si Process Simulators. Defect and Diffusion Forum, 2003, 221-223, 31-40.	0.4	2
78	Atomistic Analysis of the Role of Silicon Interstitials in Boron Cluster Dissolution. Materials Research Society Symposia Proceedings, 2004, 810, 334.	0.1	2
79	Atomistic modeling of ion beam induced amorphization in silicon. Nuclear Instruments & Methods in Physics Research B, 2005, 241, 501-505.	0.6	2
80	Multiscale modeling of radiation damage and annealing in Si. Nuclear Instruments & Methods in Physics Research B, 2007, 255, 95-100.	0.6	2
81	Molecular dynamics study of B18H22 cluster implantation into silicon. Nuclear Instruments & Methods in Physics Research B, 2007, 255, 242-246.	0.6	2
82	Molecular implants and cold implants: Two new strategies for junction formation of future Si devices. , 2011, , .		2
83	On the Forward Conduction Mechanisms in SiC P-N Junctions. Materials Research Society Symposia Proceedings, 1994, 339, 151.	0.1	1
84	Atomistic modeling of B activation and deactivation for ultra-shallow junction formation. , 2003, , .		1
85	Atomistic analysis of annealing behavior of amorphous regions. , 0, , .		1
86	Atomistic Simulation of Damage Accumulation during Shallow B and As Implant into Si. , 2007, , .		1
87	Atomistic modeling of FnVm complexes in pre-amorphized Si. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 154-155, 207-210.	1.7	1
88	Physics Mechanisms Involved in the Formation and Recrystallization of Amorphous Regions in Si through Ion Irradiation. Solid State Phenomena, 2008, 139, 71-76.	0.3	1
89	Si interstitial contribution of F+ implants in crystalline Si. Journal of Applied Physics, 2008, 103, .	1.1	1
90	Atomistic analysis of B clustering and mobility degradation in highly Bâ€doped junctions. International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, 2010, 23, 266-284.	1.2	1

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91	Carrier mobility degradation in highly B-doped junctions. , 2009, , .		1
92	Modeling of advanced ion implantation technologies in semiconductors. , 2011, , .		1
93	Simulation study of ion implanted defects associated to luminescence centers in silicon. , 2011, , .		1
94	Modeling of defect generation and dissolution in ion implanted semiconductors. , 2011, , .		1
95	Atomistic modeling of ion implantation technologies in silicon. Nuclear Instruments & Methods in Physics Research B, 2015, 352, 148-151.	0.6	1
96	Identification of Extended Defect Atomic Configurations in Silicon Through Transmission Electron Microscopy Image Simulation. Journal of Electronic Materials, 2018, 47, 4955-4958.	1.0	1
97	Extending defect models for Si processing: The role of energy barriers for defect transformation, entropy and coalescence mechanism. Nuclear Instruments & Methods in Physics Research B, 2022, 512, 54-59.	0.6	1
98	Atomistic Modeling of Amorphization in Silicon. Materials Research Society Symposia Proceedings, 2001, 669, 1.	0.1	0
99	Atomistic Modeling of Ion Beam Induced Defects in Si: From Point Defects to Continuous Amorphous Layers.. Materials Research Society Symposia Proceedings, 2004, 810, 422.	0.1	0
100	Atomistic analysis of the ion beam induced defect evolution. Nuclear Instruments & Methods in Physics Research B, 2004, 216, 100-104.	0.6	0
101	Morphology of as-implanted damage in silicon: a molecular dynamics study. , 0, , .		0
102	Boron redistribution in pre-amorphized Si during thermal annealing. , 0, , .		0
103	Study of the amorphous phase of silicon using molecular dynamics simulation techniques. , 0, , .		0
104	Boron Electrical Activation in SOI Compared to Bulk Si Substrates. , 2007, , .		0
105	Physics based models for process optimization. , 2007, , .		0
106	Molecular Dynamics Simulation of Octadecaborane Implantation into Silicon. , 2007, , .		0
107	F+ implants in crystalline Si: the Si interstitial contribution. Materials Research Society Symposia Proceedings, 2008, 1070, 1.	0.1	0
108	Atomistic Simulation Techniques in Front-End Processing. Materials Research Society Symposia Proceedings, 2008, 1070, 1.	0.1	0

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109	First Principles Study of Boron in Amorphous Silicon. Materials Research Society Symposia Proceedings, 2008, 1070, 1.	0.1	0
110	Atomistic Modeling of Junction Formation: Tools for Physics Understanding and Process Optimization. ECS Transactions, 2009, 25, 411-418.	0.3	0
111	Atomistic simulations of the effect of implant parameters on Si damage. , 2009, , .		0
112	Influence of Si surface on damage generation and recombination. , 2009, , .		0
113	Atomistic process simulation for future generation nanodevices. , 2011, , .		0
114	Kinetic Monte Carlo simulation of dopant-defect systems under submicrosecond laser thermal processes. , 2012, , .		0
115	Preface: 19th International Conference on Ion Implantation Technology. AIP Conference Proceedings, 2012, , .	0.3	0
116	Temperature effect on damage generation mechanisms during ion implantation in Si. A classical molecular dynamics study. AIP Conference Proceedings, 2012, , .	0.3	0
117	Dopant dynamics and defects evolution in implanted silicon under laser irradiations: A coupled continuum and kinetic Monte Carlo approach. , 2013, , .		0
118	Atomistic study of the anisotropic interaction between extended and point defects in crystalline silicon and its influence on Si self-interstitial diffusion. , 2016, , .		0
119	Characterization of amorphous Si generated through classical molecular dynamics simulations. , 2017, , .		0
120	Modeling SiGe Through Classical Molecular Dynamics Simulations: Chasing an Appropriate Empirical Potential. , 2018, , .		0
121	Atomistic modeling of laser-related phenomena. , 2021, , 79-136.		0
122	The Role of Incomplete Interstitial-Vacancy Recombination on Silicon Amorphization. , 2001, , 26-29.		0