Peter Pichler

List of Publications by Year
in descending order

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141 papers	1,716 citations	331670 21 h-index	330143 37 g-index
144 all docs	144 docs citations	144 times ranked	1109 citing authors

#	Article	IF	Citations
1	Intrinsic Point Defects, Impurities, and Their Diffusion in Silicon. Computational Microelectronics, 2004, , .	1.2	224
2	Simulation of critical IC fabrication processes using advanced physical and numerical methods. IEEE Transactions on Electron Devices, 1985, 32, 156-167.	3.0	128
3	Determination of vacancy concentrations in the bulk of silicon wafers by platinum diffusion experiments. Journal of Applied Physics, 1997, 82, 182-191.	2.5	112
4	A physically based model for the spatial and temporal evolution of self-interstitial agglomerates in ion-implanted silicon. Journal of Applied Physics, 2004, 96, 4866-4877.	2.5	68
5	Simulation of Critical IC-Fabrication Steps. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 1985, 4, 384-397.	2.7	54
6	Advanced activation of ultra-shallow junctions using flash-assisted RTP. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2005, 124-125, 24-31.	3.5	53
7	Vacancy-Assisted Oxygen Precipitation Phenomena in Si. Solid State Phenomena, 1997, 57-58, 129-136.	0.3	51
8	Comprehensive Study of the Electron Scattering Mechanisms in 4H-SiC MOSFETs. IEEE Transactions on Electron Devices, 2015, 62, 2562-2570.	3.0	51
9	Determination of aluminum diffusion parameters in silicon. Journal of Applied Physics, 2002, 91, 5645-5649.	2.5	41
10	Current Understanding and Modeling of B Diffusion and Activation Anomalies in Preamorphized Ultra-Shallow Junctions. Materials Research Society Symposia Proceedings, 2004, 810, 154.	0.1	40
11	Measurements of thermophysical properties of solid and liquid NIST SRM 316L stainless steel. Journal of Materials Science, 2020, 55, 4081-4093.	3.7	40
12	Re-investigation of the Normal Spectral Emissivity at 684.5 nm of Solid and Liquid Molybdenum. International Journal of Thermophysics, 2021, 42, 1.	2.1	39
13	Anomalous Impurity Segregation and Local Bonding Fluctuation in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>l</mml:mi></mml:math>-Si. Physical Review Letters, 2013, 110, 117801.	7.8	34
14	Radiation-enhanced diffusion during high-temperature ion implantation. Nuclear Instruments & Methods in Physics Research B, 1991, 59-60, 499-503.	1.4	32
15	Current Understanding and Modeling of Boron-Interstitial Clusters. Materials Research Society Symposia Proceedings, 2002, 717, 1.	0.1	29
16	AbÂInitioIdentification of the Nitrogen Diffusion Mechanism in Silicon. Physical Review Letters, 2005, 95, 025901.	7.8	28
17	Germanium substrate loss during thermal processing. Microelectronic Engineering, 2011, 88, 499-502.	2.4	28
18	Distribution and segregation of arsenic at theSiO2/Si interface. Journal of Applied Physics, 2008, 104, 023518.	2.5	25

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19	Honeycomb voids due to ion implantation in germanium. Thin Solid Films, 2010, 518, 2323-2325.	1.8	25
20	Impact of acceptor concentration on electrical properties and density of interface states of 4H-SiC n-metal-oxide-semiconductor field effect transistors studied by Hall effect. Applied Physics Letters, 2015, 106, .	3.3	25
21	Simulation of critical IC-fabrication steps. IEEE Transactions on Electron Devices, 1985, 32, 1940-1953.	3.0	23
22	Experiments and simulation of the diffusion and activation of the n-type dopants P, As, and Sb implanted into germanium. Microelectronic Engineering, 2011, 88, 458-461.	2.4	23
23	Diffusion and electrical activation of indium in silicon. Journal of Applied Physics, 2003, 93, 9773-9782.	2.5	21
24	Detailed arsenic concentration profiles at Si/SiO2 interfaces. Journal of Applied Physics, 2008, 104, 043507.	2.5	20
25	Advanced activation trends for boron and arsenic by combinations of single, multiple flash anneals and spike rapid thermal annealing. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 154-155, 3-13.	3.5	18
26	Characterization of Arsenic segregation at Si/SiO2 interface by 3D atom probe tomography. Thin Solid Films, 2010, 518, 2402-2405.	1.8	17
27	Low Energy Implantation and Transient Enhanced Diffusion: Physical Mechanisms and Technology Implications. Materials Research Society Symposia Proceedings, 1997, 469, 265.	0.1	16
28	Intrinsic Point Defects. Computational Microelectronics, 2004, , 77-227.	1.2	16
29	Observation of Vacancy Enhancement during Rapid Thermal Annealing in Nitrogen. Solid State Phenomena, 1997, 57-58, 349-354.	0.3	15
30	Simulation of focused ion beam etching by coupling a topography simulator and a Monte-Carlo sputtering yield simulator. Microelectronic Engineering, 2010, 87, 1597-1599.	2.4	15
31	Modeling platinum diffusion in silicon. Journal of Applied Physics, 2014, 116, .	2.5	13
32	A reduced approach for modeling the influence of nanoclusters and {113} defects on transient enhanced diffusion. Applied Physics Letters, 2001, 79, 2654-2656.	3.3	12
33	Current status of models for transient phenomena in dopant diffusion and activation. Nuclear Instruments & Methods in Physics Research B, 2002, 186, 256-264.	1.4	12
34	Distortion of SIMS profiles due to ion beam mixing. Radiation Effects and Defects in Solids, 1997, 141, 37-52.	1.2	11
35	On a computationally efficient approach to boron-interstitial clustering. Solid-State Electronics, 2008, 52, 1424-1429.	1.4	11
36	Modeling boron profiles in silicon after pulsed excimer laser annealing. AIP Conference Proceedings, 2012, , .	0.4	11

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37	Modeling the Annealing of Dislocation Loops in Implanted c-Si Solar Cells. IEEE Journal of Photovoltaics, 2014, 4, 851-858.	2.5	11
38	3D simulation of silicon-based single-electron transistors. , 2017, , .		11
39	Direct experimental evidence for diffusion of dopants via pairs with intrinsic point defects. Applied Physics Letters, 1992, 60, 953-955.	3.3	10
40	Calculation of the transport matrix for the coupled diffusion of dopants and vacancies. Journal of Applied Physics, 1994, 76, 223-230.	2.5	10
41	Electrical deactivation and diffusion of boron in preamorphized ultrashallow junctions: interstitial transport and F co-implant control. , 2004, , .		10
42	Simulation of Critical IC Fabrication Processes Using Advanced Physical and Numerical Methods. IEEE Journal of Solid-State Circuits, 1985, 20, 76-87.	5.4	9
43	Modeling dynamic clustering of arsenic including non-negligible concentrations of arsenic-point defect pairs. IEEE Transactions on Semiconductor Manufacturing, 1995, 8, 414-418.	1.7	9
44	On the Â«A SymmetricalÂ» Behavior of Transient Enhanced Diffusion in Pre-Amorphised SI Wafers. Materials Research Society Symposia Proceedings, 1998, 532, 67.	0.1	9
45	Effect of Oxygen on the Diffusion of Nitrogen Implanted in Silicon. Electrochemical and Solid-State Letters, 2004, 7, G161.	2.2	9
46	Enthalpy based modeling of pulsed excimer laser annealing for process simulation. Applied Surface Science, 2012, 258, 9347-9351.	6.1	9
47	Characterization of the impurity profile at the SiO2/Si interface using a combination of total reflection X-ray fluorescence spectrometry and successive etching of silicon. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2007, 62, 481-484.	2.9	8
48	Influence of Ion Implantation in SiC on the Channel Mobility in Lateral N-Channel MOSFETs. ECS Transactions, 2013, 58, 71-80.	0.5	8
49	Intrinsic nano-diffusion-couple for studying high temperature diffusion in multi-component superalloys. Scripta Materialia, 2021, 192, 120-124.	5.2	8
50	Relaxation of vacancy depth profiles in silicon wafers: A low apparent diffusivity of vacancy species. Applied Physics Letters, 2014, 104, .	3.3	7
51	Phosphorusâ€enhanced diffusion of antimony due to generation of selfâ€interstitials. Journal of Applied Physics, 1995, 78, 1623-1629.	2.5	6
52	Experimental and theoretical results of dopant activation by a combination of spike and flash annealing. , 2007, , .		6
53	Modeling and Simulation of Advanced Annealing Processes. Materials Science Forum, 0, 573-574, 279-293.	0.3	6
54	Future challenges in CMOS process modeling. Thin Solid Films, 2010, 518, 2478-2484.	1.8	6

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55	Extended model for platinum diffusion in silicon. , 2013, , .		6
56	Verification of Near-Interface Traps Models by Electrical Measurements on 4H-SiC n-Channel Mosfets. Materials Science Forum, 0, 740-742, 533-536.	0.3	6
57	Simulation of the boron buildâ€up formation during melting laser thermal annealing. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 89-92.	0.8	6
58	Channeling in 4H-SiC from an Application Point of View. Materials Science Forum, 0, 963, 386-389.	0.3	6
59	Advanced Activation and Deactivation of Arsenic-Implanted Ultra-Shallow Junctions using Flash and Spike + Flash Annealing. , 2007, , .		5
60	Thermally activated dopant diffusion in crystalline silicon at 200â€‰Â°C?. Applied Physics Letters, 1992, 60, 1205-1207.	3.3	4
61	Practical aspects of ion beam analysis of semiconductor structures. Nuclear Instruments & Methods in Physics Research B, 1994, 85, 356-362.	1.4	4
62	Distortion of sims profiles due to ion beam mixing: Shallow arsenic implants in silicon. Radiation Effects and Defects in Solids, 1998, 145, 213-223.	1.2	4
63	On the Influence of Boron-Interstitial Complexes on Transient Enhanced Diffusion. Materials Research Society Symposia Proceedings, 1999, 568, 141.	0.1	4
64	Transient-diffusion effects. Applied Physics A: Materials Science and Processing, 2003, 76, 1041-1048.	2.3	4
65	Diffusion and activation of dopants in silicon and advanced silicon-based materials. Physica Scripta, 2006, T126, 89-96.	2.5	4
66	Characterization of the Segregation of Arsenic at the Interface SiO₂/Si. Materials Research Society Symposia Proceedings, 2007, 994, 1.	0.1	4
67	Experimental investigations and simulation of the deactivation of arsenic during thermal processes after activation by SPER and spike annealing. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 154-155, 211-215.	3.5	4
68	Characterization of n-channel MOSFETs: Electrical measurements and simulation analysis. , 2013, , .		4
69	Systematic Analysis of the High- and Low-Field Channel Mobility in Lateral 4H-SiC MOSFETs. Materials Science Forum, 0, 778-780, 583-586.	0.3	4
70	Challenges and opportunities for process modeling in the nanotechnology era. Journal of Computational Electronics, 2014, 13, 3-17.	2.5	4
71	Thermo-mechanical simulation of plastic deformation during temperature cycling of bond wires for power electronic modules. , 2014, , .		4
72	Silicon selfâ€interstitial properties deduced from platinum profiles after annealing with controlled cooling. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700207.	1.8	4

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73	Diffusion of Phosphorus and Boron from Atomic Layer Deposition Oxides into Silicon. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900306.	1.8	4
74	A Review of Platinum Diffusion in Silicon and Its Application for Lifetime Engineering in Power Devices. Physica Status Solidi (A) Applications and Materials Science, 2022, 219, 2100462.	1.8	4
75	Dopants. Computational Microelectronics, 2004, , 331-467.	1.2	4
76	Modeling of the Diffusion and Activation of Arsenic in Silicon Including Clustering and Precipitation. Solid State Phenomena, 2008, 131-133, 277-282.	0.3	3
77	Total reflection x-ray fluorescence as a sensitive analysis method for the investigation of sputtering processes. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2008, 63, 1382-1386.	2.9	3
78	Advanced annealing strategies for the 32 nm node. , 2008, , .		3
79	On the thermo-mechanical modelling of a ball bonding process with ultrasonic softening. , 2013, , .		3
80	A comprehensive model for the diffusion of boron in silicon in presence of fluorine. Solid-State Electronics, 2013, 87, 4-10.	1.4	3
81	Deep Energy Levels of Platinum-Hydrogen Complexes in Silicon. Solid State Phenomena, 0, 205-206, 260-264.	0.3	3
82	Hall Factor Calculation for the Characterization of Transport Properties in N-Channel 4H-SiC MOSFETs. Materials Science Forum, 2014, 778-780, 483-486.	0.3	3
83	Modeling the Post-Implantation Annealing of Platinum. Solid State Phenomena, 2015, 242, 258-263.	0.3	3
84	A Consistent Pair-diffusion Based Steady-state Model for Phosphorus Diffusion. , 1989, , 297-301.		3
85	Isovalent Impurities. Computational Microelectronics, 2004, , 281-329.	1.2	3
86	Atomistic Evaluation of Diffusion Theories for the Diffusion of Dopants in Vacancy Gradients. , 1993, , 97-100.		3
87	Surface Tension and Thermal Conductivity of NIST SRM 1155a (AISI 316L Stainless Steel). International Journal of Thermophysics, 2022, 43, 1.	2.1	3
88	Diffusion and activation of arsenic implanted at high temperature in silicon. Nuclear Instruments & Methods in Physics Research B, 1993, 83, 167-172.	1.4	2
89	On modeling of ion implantation at high temperatures. Radiation Effects and Defects in Solids, 1994, 127, 367-384.	1.2	2
90	Influence of RTP on Vacancy Concentrations. Materials Research Society Symposia Proceedings, 1997, 490, 129.	0.1	2

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91	On the modeling of transient diffusion and activation of boron during post-implantation annealing. , 2004, , .		2
92	Flash Annealing Technology for USJ: Modeling and Metrology. , 2006, , .		2
93	Pattern Effects with the Mask off.... , 2006, , .		2
94	Process-Induced Diffusion Phenomena in Advanced CMOS Technologies. Defect and Diffusion Forum, 2006, 258-260, 510-521.	0.4	2
95	Characterization of the pile-up of As at the SiO<inf>2</inf>/Si interface. , 2007, , .		2
96	Segregation of antimony to Si/SiO2 interfaces. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 154-155, 264-267.	3.5	2
97	Simulation of plasma immersion ion implantation. , 2011, , .		2
98	Influence of La on the electrical properties of HfSiON: From diffusion to Vth shifts. Microelectronic Engineering, 2013, 109, 200-203.	2.4	2
99	On the Temperature Dependence of the Hall Factor in n-Channel 4H-SiC MOSFETs. ECS Transactions, 2013, 58, 81-86.	0.5	2
100	Impact of Fabrication Process on Electrical Properties and on Interfacial Density of States in 4H-SiC n-MOSFETs Studied by Hall Effect. Materials Science Forum, 2014, 806, 127-132.	0.3	2
101	On an improved boron segregation calibration from a particularly sensitive power MOS process. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 12-15.	0.8	2
102	Simulating wafer bow for integrated capacitors using a multiscale approach. , 2016, , .		2
103	Impurity Diffusion in Silicon. Computational Microelectronics, 2004, , 229-279.	1.2	2
104	Platinum Diffusion at Low Temperatures. , 1995, , 472-475.		2
105	Advanced simulations on laser annealing: explosive crystallization and phonon transport corrections. , 2020, , .		2
106	Two-dimensional coupled diffusion modeling. Physica B: Physics of Condensed Matter & C: Atomic, Molecular and Plasma Physics, Optics, 1985, 129, 187-191.	0.9	1
107	Dopant Migration Caused by Point Defect Gradients. Solid State Phenomena, 1993, 32-33, 259-268.	0.3	1
108	Properties of Vacancies in Silicon Determined from Laser--Annealing Experiments. , 2002, , .		1

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109	Indium in silicon: a study on diffusion and electrical activation.. Materials Research Society Symposia Proceedings, 2003, 765, 1.	0.1	1
110	Boron-Interstitial Cluster Kinetics: Extraction of Binding Energies from Dedicated Experiments. Materials Research Society Symposia Proceedings, 2004, 810, 322.	0.1	1
111	On a computationally efficient approach to boron-interstitial clustering. , 2007, , .		1
112	Review of Stress Effects on Dopant Solubility in Silicon and Silicon-Germanium Layers. Solid State Phenomena, 0, 156-158, 173-180.	0.3	1
113	On the influence of RTA and MSA peak temperature variations on Schottky contact resistances of 6-T SRAM cells. Solid-State Electronics, 2011, 65-66, 114-122.	1.4	1
114	Precipitation of Antimony Implanted into Silicon. ECS Transactions, 2012, 41, 9-17.	0.5	1
115	Melt depth and time variations during pulsed laser thermal annealing with one and more pulses. , 2013, , .		1
116	On the calculation of Hall factors for the characterization of electronic devices. , 2013, , .		1
117	Role of Defects in the Dopant Diffusion in Si. Semiconductors and Semimetals, 2015, , 1-46.	0.7	1
118	Empirical cluster modeling revisited. , 2016, , .		1
119	Platinum in Silicon after Post-Implantation Annealing: From Experiments to Process and Device Simulations. , 2018, , .		1
120	Process-Induced Diffusion Phenomena in Advanced CMOS Technologies. Defect and Diffusion Forum, 0, , 510-521.	0.4	1
121	Molecular Dynamics Modeling of the Radial Heat Transfer from Silicon Nanowires. , 2020, , .		1
122	Molecular dynamics simulations supporting the development of a continuum model of heat transport in nanowires. , 2021, , .		1
123	Simulation of silicon semiconductor processing. European Transactions on Telecommunications, 1990, 1, 293-299.	1.2	0
124	Response to Comment on: â€˜â€˜Direct experimental evidence for diffusion of dopants via pairs with intrinsic point defectsâ€™â€™. Applied Physics Letters, 1993, 63, 2576-2577.	3.3	0
125	Atomistic evaluation of diffusion theories for the diffusion of dopants in vacancy gradients. Microelectronics Journal, 1995, 26, 261-264.	2.0	0
126	Extraction of Vacancy Parameters from Outdiffusion of Zinc from Silicon. Solid State Phenomena, 1999, 69-70, 455-460.	0.3	0

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127	Modelling of Intrinsic Aluminum Diffusion for Future Power Devices. , 2000, , .		0
128	Process models for advanced annealing schemes and their use in device simulation. , 2008, , .		0
129	Comparison between 65nm bulk and PD-SOI MOSFETs: Si/BOX interface effect on point defects and doping profiles. , 2009, , .		0
130	PD-SOI MOSFETs: interface effect on point defects and doping profiles. , 2009, , .		0
131	Defects formed by pulsed laser annealing: electrical properties and depth profiles in n-type silicon measured by deep level transient spectroscopy. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 956-959.	0.8	0
132	On the strain induced by arsenic into silicon. , 2013, , .		0
133	Dopant dynamics and defects evolution in implanted silicon under laser irradiations: A coupled continuum and kinetic Monte Carlo approach. , 2013, , .		0
134	Diffusion and Segregation Model for the Annealing of Silicon Solar Cells Implanted With Phosphorus. IEEE Journal of Photovoltaics, 2015, 5, 129-136.	2.5	0
135	Thermo-mechanical ball bonding simulation with elasto-plastic parameters obtained from nanoindentation and atomic force measurements. , 2015, , .		0
136	Effect of Bulk Potential Engineering on the Transport Properties of SiC MOSFETs: Characterization and Interpretation. Materials Science Forum, 2015, 821-823, 737-740.	0.3	0
137	On a Novel Source Technology for Deep Aluminum Diffusion for Silicon Power Electronics. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900167.	1.8	0
138	Quantum Mechanical Studies of Boron Clustering in Silicon. , 2003, , 381-392.		0
139	Recombination of Point Defects via Extended Defects and Its Influence on Dopant Diffusion. , 1998, , 360-363.		0
140	Upcoming Challenges for Process Modeling. , 2007, , 81-88.		0
141	Diffusion and Deactivation of As in Si: Combining Atomistic and Continuum Simulation Approaches. , 2007, , 13-16.		0