

John Kouvetakis

List of Publications by Year in descending order

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citations

257450

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all docs

82
docs citations

82
times ranked

1210
citing authors

#	ARTICLE	IF	CITATIONS
1	Optical critical points of thin-film Ge _{1-x} Sn _y alloys: A comparative study. Physical Review B, 2006, 73, .	3.2	291
2	Extended performance GeSn/Si(100) p-i-n photodetectors for full spectral range telecommunication applications. Applied Physics Letters, 2009, 95, .	3.3	155
3	Sn-alloying as a means of increasing the optical absorption of Ge at the C- and L-telecommunication bands. Semiconductor Science and Technology, 2009, 24, 115006.	2.0	92
4	Molecular-Based Synthetic Approach to New Group IV Materials for High-Efficiency, Low-Cost Solar Cells and Si-Based Optoelectronics. Journal of the American Chemical Society, 2008, 130, 16095-16102.	13.7	79
5	High-Performance Near-IR Photodiodes: A Novel Chemistry-Based Approach to Ge and Ge-Sn Devices Integrated on Silicon. IEEE Journal of Quantum Electronics, 2011, 47, 213-222.	1.9	77
6	Chemical vapor deposition of gallium nitride from diethylgallium azide. Chemistry of Materials, 1989, 1, 476-478.	6.7	73
7	New classes of Si-based photonic materials and device architectures via designer molecular routes. Journal of Materials Chemistry, 2007, 17, 1649.	6.7	62
8	Synthesis, Stability Range, and Fundamental Properties of Si-Ge-Sn Semiconductors Grown Directly on Si(100) and Ge(100) Platforms. Chemistry of Materials, 2010, 22, 3779-3789.	6.7	61
9	Advances in SiGeSn technology. Journal of Materials Research, 2007, 22, 3281-3291.	2.6	59
10	Tunable band structure in diamond-cubic tin-germanium alloys grown on silicon substrates. Solid State Communications, 2003, 127, 355-359.	1.9	57
11	Fundamental band gap and direct-indirect crossover in Ge _{1-x} Si _x Sn _y alloys. Applied Physics Letters, 2013, 103, 202104.	3.3	46
12	Transferability of optical bowing parameters between binary and ternary group-IV alloys. Solid State Communications, 2006, 138, 309-313.	1.9	43
13	Complementary metal-oxide semiconductor-compatible detector materials with enhanced 1550 nm responsivity via Sn-doping of Ge/Si(100). Journal of Applied Physics, 2011, 109, .	2.5	41
14	Novel chemical routes to silicon-germanium-carbon materials. Applied Physics Letters, 1994, 65, 2960-2962.	3.3	38
15	Development of Light Emitting Group IV Ternary Alloys on Si Platforms for Long Wavelength Optoelectronic Applications. Chemistry of Materials, 2014, 26, 2522-2531.	6.7	37
16	Deviations from Vegard's law in semiconductor thin films measured with X-ray diffraction and Rutherford backscattering: The Ge _{1-x} Sn _y and Ge _{1-x} Si _x cases. Journal of Applied Physics, 2017, 122, .	2.5	36
17	Nanosynthesis Routes to New Tetrahedral Crystalline Solids: Silicon-like Si ₃ AlP. Journal of the American Chemical Society, 2011, 133, 16212-16218.	13.7	35
18	Ultra-Low-Temperature Epitaxy of Ge-based Semiconductors and Optoelectronic Structures on Si(100): Introducing Higher Order Germanes (Ge ₃ H ₈ , Ge ₄ H ₁₀). Chemistry of Materials, 2012, 24, 1619-1628.	6.7	34

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19	Mid-infrared ($3\frac{1}{4}\mu\text{m}$) Ge _{1-x} Sn _y alloys (0.15%$\leq y \leq 0.30$): Synthesis, structural, and optical properties. Applied Physics Letters, 2019, 114, .	3.3	32
20	Synthesis and Fundamental Studies of (H ₃ Ge) _x Si _{4-x} Molecules: Precursors to Semiconductor Hetero- and Nanostructures on Si. Journal of the American Chemical Society, 2005, 127, 9855-9864.	13.7	31
21	Molecular Synthesis of High-Performance Near-IR Photodetectors with Independently Tunable Structural and Optical Properties Based on Si-Ge-Sn. Journal of the American Chemical Society, 2012, 134, 20756-20767.	13.7	31
22	Compliant tin-based buffers for the growth of defect-free strained heterostructures on silicon. Applied Physics Letters, 2006, 88, 252112.	3.3	30
23	New strategies for Ge-on-Si materials and devices using non-conventional hydride chemistries: the tetragermane case. Semiconductor Science and Technology, 2013, 28, 105001.	2.0	30
24	Synthesis and Fundamental Studies of Si-Compatible (Si)GeSn and GeSn Mid-IR Systems with Ultrahigh Sn Contents. Chemistry of Materials, 2019, 31, 9831-9842.	6.7	26
25	Synthesis of Butane-Like SiGe Hydrides: Enabling Precursors for CVD of Ge-Rich Semiconductors. Journal of the American Chemical Society, 2006, 128, 6919-6930.	13.7	25
26	Growth of heteroepitaxial Si _{1-x} Ge _y alloys on silicon using novel deposition chemistry. Applied Physics Letters, 1995, 67, 1247-1249.	3.3	24
27	Synthesis and optical properties of Sn-rich Ge _{1-x} Si _x Sn materials and devices. Thin Solid Films, 2014, 557, 177-182.	1.8	22
28	Doping dependence of the optical dielectric function in n-type germanium. Journal of Applied Physics, 2019, 125, .	2.5	22
29	Optical properties of Ge _{1-x} Si _x Sn alloys with $y \geq x$: Direct bandgaps beyond 1550 nm. Applied Physics Letters, 2013, 103, .	3.3	21
30	Synthesis and Characterization of Tetrakis(trihalogermyl)methanes. Molecules Containing Sterically Strained Carbon Centers. Inorganic Chemistry, 1995, 34, 5103-5104.	4.0	20
31	Epitaxial growth of Al _x Ga _{1-x} N on Si(111) via a ZrB ₂ (0001) buffer layer. Applied Physics Letters, 2004, 84, 3510-3512.	3.3	20
32	Observation of heavy- and light-hole split direct bandgap photoluminescence from tensile-strained GeSn (0.03% Sn). Journal of Applied Physics, 2014, 116, 103502.	2.5	20
33	Compositional dependence of optical interband transition energies in GeSn and GeSiSn alloys. Solid-State Electronics, 2015, 110, 76-82.	1.4	19
34	In situ, real-time observation of Al chemical vapor deposition on SiO ₂ in an environmental transmission electron microscope. Journal of Applied Physics, 1995, 77, 2846-2848.	2.5	18
35	Low-temperature growth of SiCAlN films of high hardness on Si(111) substrates. Applied Physics Letters, 2001, 79, 2880-2882.	3.3	16
36	Synthesis and Materials Properties of Sn/P-Doped Ge on Si(100): Photoluminescence and Prototype Devices. Chemistry of Materials, 2011, 23, 4480-4486.	6.7	16

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37	Mismatched Heteroepitaxy of Tetrahedral Semiconductors with Si via ZrB ₂ Templates. Chemistry of Materials, 2005, 17, 4647-4652.	6.7	15
38	Near IR Photodiodes with Tunable Absorption Edge Based on Ge _{1-y} Sn _y Alloys Integrated on Silicon. ECS Transactions, 2010, 33, 765-773.	0.5	15
39	Band Gap-Engineered Group-IV Optoelectronic Semiconductors, Photodiodes and Prototype Photovoltaic Devices. ECS Journal of Solid State Science and Technology, 2013, 2, Q172-Q177.	1.8	15
40	Advances in SiGeSn/Ge Technology. Materials Research Society Symposia Proceedings, 2006, 958, 1.	0.1	14
41	Ultralow Resistivity Ge:Sb heterostructures on Si Using Hydride Epitaxy of Deuterated Stibine and Trigermane. ACS Applied Materials & Interfaces, 2016, 8, 23810-23819.	8.0	14
42	Infrared dielectric function of $\text{Ge}_{1-y}\text{Sn}_y$ alloys. Physical Review B, 2009, 80, .	3.2	12
43	Temperature-dependent direct transition energy in Ge _{0.99} Sn _{0.01} film grown on Si measured by photoreflectance spectroscopy. Thin Solid Films, 2015, 591, 295-300.	1.8	12
44	Temperature dependence of the interband critical points of bulk Ge and strained Ge on Si. Applied Surface Science, 2017, 421, 905-912.	6.1	12
45	Molecular Structure of C(GeBr ₃) ₄ Determined by Gas-Phase Electron Diffraction and Density Functional Theory Calculations: Implications for the Length and Stability of Ge-C Bonds in Crystalline Semiconductor Solids. Inorganic Chemistry, 1997, 36, 5198-5201.	4.0	11
46	Synthesis of Highly Coherent SiGe and Si ₄ Ge Nanostructures by Molecular Beam Epitaxy of H ₃ SiGeH ₃ and Ge(SiH ₃) ₄ . Chemistry of Materials, 2003, 15, 3569-3572.	6.7	11
47	Epitaxial semimetallic Hf _x Zr _{1-x} B ₂ templates for optoelectronic integration on silicon. Applied Physics Letters, 2006, 89, 242110.	3.3	11
48	Structural, electronic, and energetic properties of SiC[111]-ZrB ₂ [0001] heterojunctions: A first-principles density functional theory study. Physical Review B, 2008, 77, .	3.2	11
49	Extended Compositional Range for the Synthesis of SWIR and LWIR Ge _{1-y} Sn _y Alloys and Device Structures via CVD of SnH ₄ and Ge ₃ H ₈ . ACS Applied Electronic Materials, 2021, 3, 3451-3460.	4.3	11
50	Synthesis and Fundamental Properties of Stable Ph ₃ SnSiH ₃ and Ph ₃ SnGeH ₃ Hydrides: Model Compounds for the Design of Si-Ge-Sn Photonic Alloys. Inorganic Chemistry, 2009, 48, 6314-6320.	4.0	10
51	Monocrystalline Al(As _{1-x} N _x) ₃ and Al(P _{1-x} N _x) ₃ Alloys with Diamond-like Structures: New Chemical Approaches to Semiconductors Lattice Matched to Si. Chemistry of Materials, 2012, 24, 3219-3230.	3.2	10
52	Monocrystalline Al(As _{1-x} N _x) ₃ and Al(P _{1-x} N _x) ₃ Alloys with Diamond-like Structures: New Chemical Approaches to Semiconductors Lattice Matched to Si. Chemistry of Materials, 2012, 24, 3219-3230.	6.7	10
53	Degenerate parallel conducting layer and conductivity type conversion observed from p-Ge _{1-y} Sn _y (y=0.06%) grown on n-Si substrate. Applied Physics Letters, 2012, 101, 131110.	3.3	9
54	ClnH ₆ -nSiGe Compounds for CMOS Compatible Semiconductor Applications: Synthesis and Fundamental Studies. Journal of the American Chemical Society, 2007, 129, 7950-7960.	13.7	8

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55	Observation of Phase-Filling Singularities in the Optical Dielectric Function of Highly Doped n -Type Ge. Physical Review Letters, 2017, 118, 267402.	7.8	8
56	Growth and optical properties of epitaxial GaN films on Si(111) using single gas-source molecular beam epitaxy. Thin Solid Films, 2003, 434, 106-111.	1.8	7
57	(Invited) Si-Ge-Sn Technologies: From Molecules to Materials to Prototype Devices. ECS Transactions, 2010, 33, 615-628.	0.5	6
58	Nanostructure "Property Control in AlP ₃ /Si(100) Semiconductors Using Direct Molecular Assembly: Theory Meets Experiment at the Atomic Level. Chemistry of Materials, 2014, 26, 4092-4101.	6.7	6
59	Observation of temperature-dependent heavy- and light-hole split direct bandgap and tensile strain from Ge _{0.985} Sn _{0.015} using photoreflectance spectroscopy. Current Applied Physics, 2016, 16, 83-87.	2.4	5
60	Transport properties of doped GeSn alloys. AIP Conference Proceedings, 2010, , .	0.4	4
61	Rational Design of Monocrystalline (InP) ₃ /Ge ₅ /Ge/Si(100) Semiconductors: Synthesis and Optical Properties. Journal of the American Chemical Society, 2013, 135, 12388-12399.	13.7	4
62	Electrical characterization and deep-level transient spectroscopy of Ge _{0.873} Si _{0.104} Sn _{0.023} photodiode grown on Ge platform by ultra-high vacuum chemical vapor deposition. Thin Solid Films, 2018, 654, 77-84.	1.8	4
63	Fabrication of Ge:Ga Hyperdoped Materials and Devices Using CMOS-Compatible Ga and Ge Hydride Chemistries. ACS Applied Materials & Interfaces, 2018, 10, 37198-37206.	8.0	4
64	Growth of GaN on (100)Si Using a New C-H and N-H Free Single-Source Precursor. Materials Research Society Symposia Proceedings, 1995, 395, 79.	0.1	3
65	Structural properties of heteroepitaxial germanium-carbon alloys grown on Si (100). Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2001, 81, 1613-1624.	0.6	3
66	Electrical characterization studies of p-type Ge, Ge _{1-x} Sn _x , and Si _{0.09} Ge _{0.882} Sn _{0.028} grown on n-Si substrates. Current Applied Physics, 2014, 14, S123-S128.	2.4	3
67	Synthesis and Characterization of Monocrystalline GaP ₃ and (GaP) ₅ Phases with Diamond-like Structures via Epitaxy-Driven Reactions of Molecular Hydrides. Chemistry of Materials, 2017, 29, 3202-3210.	6.7	3
68	Temperature-Dependent Photoluminescence Studies of Ge _{1-y} Sn _y (y = 4.3%–9.0%) Grown on Ge-Buffered Si: Evidence for a Direct Bandgap Cross-Over Point. Journal of the Korean Physical Society, 2019, 75, 577-585.	0.7	3
69	trans-Tetrabromobis(dimethylamine)tin. Acta Crystallographica Section E: Structure Reports Online, 2002, 58, m684-m685.	0.2	1
70	Integration of Zn ₂ Cd ₂ Te ₂ Se Semiconductors on Si Platforms via Structurally Designed Cubic Templates Based on Group IV Elements. Chemistry of Materials, 2009, 21, 3143-3152.	6.7	1
71	(Invited) Practical Strategies for Tuning Optical, Structural and Thermal Properties in Group IV Ternary Semiconductors. ECS Transactions, 2010, 33, 717-728.	0.5	1
72	Direct gap Group IV semiconductors for next generation Si-based IR photonics. Materials Research Society Symposia Proceedings, 2014, 1666, 24.	0.1	1

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73	Investigation of hydrogen inductively coupled plasma treatment effect for Ge _{0.938} Sn _{0.062} /Ge/Si film using photoreflectance spectroscopy. <i>Thin Solid Films</i> , 2018, 645, 345-350.	1.8	1
74	Evolution of optical phonons in epitaxial Ge _{1-y} Sn _y structures. <i>Journal of Raman Spectroscopy</i> , 2020, 51, 2305-2310.	2.5	1
75	The Application of Novel Chemical Precursors for the Preparation of Si-Ge-C Heterostructures and Superlattices. <i>Materials Research Society Symposia Proceedings</i> , 1998, 533, 281.	0.1	0
76	Synthesis of (Si ₂ Ge) _{Cx} and Related Ge _{1-x} C _x Phases in The Si-Ge-C System. <i>Materials Research Society Symposia Proceedings</i> , 1998, 547, 475.	0.1	0
77	Compositional Dependence of Critical Point Transitions in Ge _{1-x} Sn _x alloys. <i>AIP Conference Proceedings</i> , 2005, , .	0.4	0
78	Advances in Si-Ge-Sn materials science and technology. , 2007, , .		0
79	Synthesis of (Hf, Zr)B ₂ -based heterostructures: hybrid substrate systems for low temperature Al-Ga-N integration with Si. <i>Journal of Materials Chemistry</i> , 2008, 18, 4775.	6.7	0
80	Growth and Optical Properties of InGaAs via Ge-Based Virtual Substrates: A New Chemistry Based Strategy. <i>ECS Transactions</i> , 2010, 33, 941-950.	0.5	0
81	High Resolution EELS Study of Ge _{1-y} Sn _y and Ge _{1-x-y} Si _x Sn _y Alloys. <i>Microscopy and Microanalysis</i> , 2014, 20, 520-521.	0.4	0
82	Synthesis and Structural and Optical Properties of Ga(As _{1-x} P _x)Ge ₃ and (GaP) _y Ge _{5-2y} Semiconductors Using Interface-Engineered Group IV Platforms. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 35105-35113.	8.0	0