

# John Kouvetakis

## List of Publications by Year in descending order

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82  
papers

2,019  
citations

257450

24  
h-index

254184

43  
g-index

82  
all docs

82  
docs citations

82  
times ranked

1210  
citing authors

#	ARTICLE	IF	CITATIONS
1	Extended Compositional Range for the Synthesis of SWIR and LWIR Ge <sub>1-x</sub> Sn <sub>x</sub> Alloys and Device Structures via CVD of SnH <sub>4</sub> and Ge <sub>3</sub> H <sub>8</sub> . ACS Applied Electronic Materials, 2021, 3, 3451-3460.	4.3	11
2	Evolution of optical phonons in epitaxial Ge <sub>1-x</sub> Sn <sub>x</sub> structures. Journal of Raman Spectroscopy, 2020, 51, 2305-2310.	2.5	1
3	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
4	Temperature-Dependent Photoluminescence Studies of Ge <sub>1-y</sub> Sn <sub>y</sub> (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
5	Mid-infrared (3–4 μm) Ge <sub>1-x</sub> Sn <sub>x</sub> alloys (0.15% <math>x</math> <math>0.30</math>): Synthesis, structural, and optical properties. Applied Physics Letters, 2019, 114, .	3.3	32
6	Doping dependence of the optical dielectric function in n-type germanium. Journal of Applied Physics, 2019, 125, .	2.5	22
7	Electrical characterization and deep-level transient spectroscopy of Ge <sub>0.873</sub> Si <sub>0.104</sub> Sn <sub>0.023</sub> photodiode grown on Ge platform by ultra-high vacuum chemical vapor deposition. Thin Solid Films, 2018, 654, 77-84.	1.8	4
8	Investigation of hydrogen inductively coupled plasma treatment effect for Ge <sub>0.938</sub> Sn <sub>0.062</sub> /Ge/Si film using photoreflectance spectroscopy. Thin Solid Films, 2018, 645, 345-350.	1.8	1
9	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
10	Synthesis and Characterization of Monocrystalline GaP <sub>3</sub> and (GaP) <sub>5</sub> Phases with Diamond-like Structures via Epitaxy-Driven Reactions of Molecular Hydrides. Chemistry of Materials, 2017, 29, 3202-3210.	6.7	3
11	Deviations from Vegard's law in semiconductor thin films measured with X-ray diffraction and Rutherford backscattering: The Ge <sub>1-x</sub> Sn <sub>x</sub> and Ge <sub>1-x</sub> Si <sub>x</sub> cases. Journal of Applied Physics, 2017, 122, .	2.5	36
12	Synthesis and Structural and Optical Properties of Ga(As <sub>1-x</sub> P <sub>x</sub> )Ge <sub>3</sub> and (GaP) <sub>5</sub> Semiconductors Using Interface-Engineered Group IV Platforms. ACS Applied Materials & Interfaces, 2017, 9, 35105-35113.	8.0	0
13	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
14	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
15	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
16	Observation of temperature-dependent heavy- and light-hole split direct bandgap and tensile strain from Ge <sub>0.985</sub> Sn <sub>0.015</sub> using photoreflectance spectroscopy. Current Applied Physics, 2016, 16, 83-87.	2.4	5
17	Compositional dependence of optical interband transition energies in GeSn and GeSiSn alloys. Solid-State Electronics, 2015, 110, 76-82.	1.4	19
18	Temperature-dependent direct transition energy in Ge <sub>0.99</sub> Sn <sub>0.01</sub> film grown on Si measured by photoreflectance spectroscopy. Thin Solid Films, 2015, 591, 295-300.	1.8	12

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19	Observation of heavy- and light-hole split direct bandgap photoluminescence from tensile-strained GeSn (0.03% Sn). <i>Journal of Applied Physics</i> , 2014, 116, 103502.	2.5	20
20	Nanostructureâ€“Property Control in AlPSi <sub>3</sub> /Si(100) Semiconductors Using Direct Molecular Assembly: Theory Meets Experiment at the Atomic Level. <i>Chemistry of Materials</i> , 2014, 26, 4092-4101.	6.7	6
21	Development of Light Emitting Group IV Ternary Alloys on Si Platforms for Long Wavelength Optoelectronic Applications. <i>Chemistry of Materials</i> , 2014, 26, 2522-2531.	6.7	37
22	Electrical characterization studies of p-type Ge, Ge <sup>1-x</sup> Sn <sup>x</sup> , and Si <sub>0.09</sub> Ge <sub>0.882</sub> Sn <sub>0.028</sub> grown on n-Si substrates. <i>Current Applied Physics</i> , 2014, 14, S123-S128.	2.4	3
23	Synthesis and optical properties of Sn-rich Ge <sup>1-x</sup> Sn <sup>x</sup> materials and devices. <i>Thin Solid Films</i> , 2014, 557, 177-182.	1.8	22
24	Direct gap Group IV semiconductors for next generation Si-based IR photonics. <i>Materials Research Society Symposia Proceedings</i> , 2014, 1666, 24.	0.1	1
25	High Resolution EELS Study of Ge <sub>1-y</sub> Sn <sub>y</sub> and Ge <sub>1-x-y</sub> Si <sub>x</sub> Sn <sub>y</sub> Alloys. <i>Microscopy and Microanalysis</i> , 2014, 20, 520-521.	0.4	0
26	Optical properties of Ge <sub>1-x-y</sub> Si <sub>x</sub> Sn <sub>y</sub> alloys with $x > 0$ and $y > 0$ : Direct bandgaps beyond 1550 nm. <i>Applied Physics Letters</i> , 2013, 103, .	3.3	21
27	Fundamental band gap and direct-indirect crossover in Ge <sub>1-x-y</sub> Si <sub>x</sub> Sn <sub>y</sub> alloys. <i>Applied Physics Letters</i> , 2013, 103, 202104.	3.3	46
28	Rational Design of Monocrystalline (InP) <sub>y</sub> Ge <sub>5-2y</sub> /Ge/Si(100) Semiconductors: Synthesis and Optical Properties. <i>Journal of the American Chemical Society</i> , 2013, 135, 12388-12399.	13.7	4
29	New strategies for Ge-on-Si materials and devices using non-conventional hydride chemistries: the tetragermane case. <i>Semiconductor Science and Technology</i> , 2013, 28, 105001.	2.0	30
30	Band Gap-Engineered Group-IV Optoelectronic Semiconductors, Photodiodes and Prototype Photovoltaic Devices. <i>ECS Journal of Solid State Science and Technology</i> , 2013, 2, Q172-Q177.	1.8	15
31	Degenerate parallel conducting layer and conductivity type conversion observed from p-Ge <sup>1-y</sup> Sn <sub>y</sub> ( $y \approx 0.06\%$ ) grown on n-Si substrate. <i>Applied Physics Letters</i> , 2012, 101, 131110.	3.3	9
32	Ultra-Low-Temperature Epitaxy of Ge-based Semiconductors and Optoelectronic Structures on Si(100): Introducing Higher Order Germanes (Ge <sub>3</sub> H <sub>8</sub> , Ge <sub>4</sub> H <sub>10</sub> ). <i>Chemistry of Materials</i> , 2012, 24, 1619-1628.	6.7	34
33	Monocrystalline Al(As <sub>1-x</sub> N <sub>x</sub> )Si <sub>3</sub> and Al(P <sub>1-x</sub> N <sub>x</sub> ) <sub>2</sub> Si <sub>5</sub> Alloys with Diamond-like Structures: New Chemical Approaches to Semiconductors Lattice Matched to Si. <i>Chemistry of Materials</i> , 2012, 24, 3219-3230.	6.7	10
34	Molecular Synthesis of High-Performance Near-IR Photodetectors with Independently Tunable Structural and Optical Properties Based on Siâ€“Geâ€“Sn. <i>Journal of the American Chemical Society</i> , 2012, 134, 20756-20767.	13.7	31
35	Dependence of the Raman spectrum in Ge <sub>1-x-y</sub> Sn <sub>y</sub> and Ge <sub>1-x-y</sub> Si <sub>x</sub> Sn <sub>y</sub> alloys. <i>Applied Physics Letters</i> , 2012, 101, 131110.	3.2	10
36	Nanosynthesis Routes to New Tetrahedral Crystalline Solids: Silicon-like Si <sub>3</sub> AlP. <i>Journal of the American Chemical Society</i> , 2011, 133, 16212-16218.	13.7	35

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37	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
38	High-Performance Near-IR Photodiodes: A Novel Chemistry-Based Approach to Ge and Ge <sup>1-x</sup> Sn <sup>x</sup> Devices Integrated on Silicon. IEEE Journal of Quantum Electronics, 2011, 47, 213-222.	1.9	77
39	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
40	Transport properties of doped GeSn alloys. AIP Conference Proceedings, 2010, , .	0.4	4
41	Growth and Optical Properties of InGaAs via Ge-Based Virtual Substrates: A New Chemistry Based Strategy. ECS Transactions, 2010, 33, 941-950.	0.5	0
42	(Invited) Practical Strategies for Tuning Optical, Structural and Thermal Properties in Group IV Ternary Semiconductors. ECS Transactions, 2010, 33, 717-728.	0.5	1
43	(Invited) Si-Ge-Sn Technologies: From Molecules to Materials to Prototype Devices. ECS Transactions, 2010, 33, 615-628.	0.5	6
44	Near IR Photodiodes with Tunable Absorption Edge Based on Ge <sub>1-y</sub> Sn <sub>y</sub> Alloys Integrated on Silicon. ECS Transactions, 2010, 33, 765-773.	0.5	15
45	Synthesis, Stability Range, and Fundamental Properties of Si <sup>x</sup> Ge <sup>1-x</sup> Sn Semiconductors Grown Directly on Si(100) and Ge(100) Platforms. Chemistry of Materials, 2010, 22, 3779-3789.	6.7	61
46	Infrared dielectric function of $\text{Ge}_{1-y}\text{Sn}_y$ alloys. Physical Review B, 2009, 80, .	3.2	12
47	Extended performance GeSn/Si(100) p-i-n photodetectors for full spectral range telecommunication applications. Applied Physics Letters, 2009, 95, .	3.3	155
48	Sn-alloying as a means of increasing the optical absorption of Ge at the $\text{C}$ - and $\text{L}$ -telecommunication bands. Semiconductor Science and Technology, 2009, 24, 115006.	2.0	92
49	Synthesis and Fundamental Properties of Stable Ph <sub>3</sub> SnSiH <sub>3</sub> and Ph <sub>3</sub> SnGeH <sub>3</sub> Hydrides: Model Compounds for the Design of Si <sup>x</sup> Ge <sup>1-x</sup> Sn Photonic Alloys. Inorganic Chemistry, 2009, 48, 6314-6320.	4.0	10
50	Integration of Zn <sup>x</sup> Cd <sup>1-x</sup> Te <sup>z</sup> 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
51	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
52	Synthesis of (Hf, Zr)B <sub>2</sub> -based heterostructures: hybrid substrate systems for low temperature Al <sup>x</sup> Ga <sup>1-x</sup> N integration with Si. Journal of Materials Chemistry, 2008, 18, 4775.	6.7	0
53	Structural, electronic, and energetic properties of SiC[111]-ZrB <sub>2</sub> [0001] heterojunctions: A first-principles density functional theory study. Physical Review B, 2008, 77, .	3.2	11
54	Advances in SiGeSn technology. Journal of Materials Research, 2007, 22, 3281-3291.	2.6	59

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55	Advances in Si-Ge-Sn materials science and technology. , 2007, , .		0
56	New classes of Si-based photonic materials and device architectures via designer molecular routes. Journal of Materials Chemistry, 2007, 17, 1649.	6.7	62
57	ClnH6-nSiGe Compounds for CMOS Compatible Semiconductor Applications:Â Synthesis and Fundamental Studies. Journal of the American Chemical Society, 2007, 129, 7950-7960.	13.7	8
58	Optical critical points of thin-filmGe1â~ySnyalloys: A comparativeGe1â~ySnyâ•Ge1â~xSixstudy. Physical Review B, 2006, 73, .	3.2	291
59	Synthesis of Butane-Like SiGe Hydrides:â€% Enabling Precursors for CVD of Ge-Rich Semiconductors. Journal of the American Chemical Society, 2006, 128, 6919-6930.	13.7	25
60	Transferability of optical bowing parameters between binary and ternary group-IV alloys. Solid State Communications, 2006, 138, 309-313.	1.9	43
61	Advances in SiGeSn/Ge Technology. Materials Research Society Symposia Proceedings, 2006, 958, 1.	0.1	14
62	Compliant tin-based buffers for the growth of defect-free strained heterostructures on silicon. Applied Physics Letters, 2006, 88, 252112.	3.3	30
63	Epitaxial semimetallic HfxZr1â~xB2 templates for optoelectronic integration on silicon. Applied Physics Letters, 2006, 89, 242110.	3.3	11
64	Compositional Dependence of Critical Point Transitions in Ge1â~xSnx alloys. AIP Conference Proceedings, 2005, , .	0.4	0
65	Mismatched Heteroepitaxy of Tetrahedral Semiconductors with Si via ZrB2Templates. Chemistry of Materials, 2005, 17, 4647-4652.	6.7	15
66	Synthesis and Fundamental Studies of (H3Ge)xSiH4-x Molecules:â€% Precursors to Semiconductor Hetero- and Nanostructures on Si. Journal of the American Chemical Society, 2005, 127, 9855-9864.	13.7	31
67	Epitaxial growth of AlxGa1â~xN on Si(111) via a ZrB2(0001) buffer layer. Applied Physics Letters, 2004, 84, 3510-3512.	3.3	20
68	Tunable band structure in diamondâ€cubic tinâ€germanium alloys grown on silicon substrates. Solid State Communications, 2003, 127, 355-359.	1.9	57
69	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
70	Synthesis of Highly Coherent SiGe and Si4Ge Nanostructures by Molecular Beam Epitaxy of H3SiGeH3and Ge(SiH3)4. Chemistry of Materials, 2003, 15, 3569-3572.	6.7	11
71	trans-Tetrabromobis(dimethylamine)tin. Acta Crystallographica Section E: Structure Reports Online, 2002, 58, m684-m685.	0.2	1
72	Low-temperature growth of SiCAlN films of high hardness on Si(111) substrates. Applied Physics Letters, 2001, 79, 2880-2882.	3.3	16

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73	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
74	The Application of Novel Chemical Precursors for the Preparation of Si-Ge-C Heterostructures and Superlattices. Materials Research Society Symposia Proceedings, 1998, 533, 281.	0.1	0
75	Synthesis of (Si <sub>2</sub> Ge) <sub>x</sub> C <sub>y</sub> and Related Ge <sub>1-x</sub> C <sub>y</sub> Phases in The Si-Ge-C System. Materials Research Society Symposia Proceedings, 1998, 547, 475.	0.1	0
76	Molecular Structure of C(GeBr <sub>3</sub> ) <sub>4</sub> 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
77	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
78	In situ, real-time observation of Al chemical vapor deposition on SiO <sub>2</sub> in an environmental transmission electron microscope. Journal of Applied Physics, 1995, 77, 2846-2848.	2.5	18
79	Synthesis and Characterization of Tetrakis(trihalogermyl)methanes. Molecules Containing Sterically Strained Carbon Centers. Inorganic Chemistry, 1995, 34, 5103-5104.	4.0	20
80	Growth of heteroepitaxial Si <sub>1-x</sub> Ge <sub>x</sub> alloys on silicon using novel deposition chemistry. Applied Physics Letters, 1995, 67, 1247-1249.	3.3	24
81	Novel chemical routes to silicon-germanium-carbon materials. Applied Physics Letters, 1994, 65, 2960-2962.	3.3	38
82	Chemical vapor deposition of gallium nitride from diethylgallium azide. Chemistry of Materials, 1989, 1, 476-478.	6.7	73