# Volker J Sorger

List of Publications by Year
in descending order



| | | | |
|---|---|---|---|
| 185 papers | 10,374 citations | 70961 41 h-index | 32761 100 g-index |
| 191 all docs | 191 docs citations | 191 times ranked | 7580 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Virtualizing a Post-Mooreâ€™s Law Analog Mesh Processor: The Case of a Photonic PDE Accelerator. Transactions on Embedded Computing Systems, 2023, 22, 1-26. | 2.1 | 6 |
| 2 | Prospects and applications of photonic neural networks. Advances in Physics: X, 2022, 7, . | 1.5 | 54 |
| 3 | On-chip nanophotonic broadband wavelength detector with 2D-Electron gas. Nanophotonics, 2022, 11, 289-296. | 2.9 | 13 |
| 4 | Electrically tunable metasurface by using InAs in a metalâ€“insulatorâ€“metal configuration. Nanophotonics, 2022, 11, 1117-1126. | 2.9 | 11 |
| 5 | A Chirality-Based Quantum Leap. ACS Nano, 2022, 16, 4989-5035. | 7.3 | 74 |
| 6 | Integrated ultra-high-performance graphene optical modulator. Nanophotonics, 2022, 11, 4011-4016. | 2.9 | 24 |
| 7 | Highly accurate, reliable, and non-contaminating two-dimensional material transfer system. Applied Physics Reviews, 2022, 9, . | 5.5 | 13 |
| 8 | Emerging devices and packaging strategies for electronic-photonic AI accelerators: opinion. Optical Materials Express, 2022, 12, 1347. | 1.6 | 34 |
| 9 | Charge and field driven integrated optical modulators: comparative analysis: opinion. Optical Materials Express, 2022, 12, 1784. | 1.6 | 6 |
| 10 | Photonic Tensor Core with Photonic Compute-in-Memory. , 2022, , . | | 8 |
| 11 | 100ÂGHz micrometer-compact broadband monolithic ITO Machâ€“Zehnder interferometer modulator enabling 3500 times higher packing density. Nanophotonics, 2022, 11, 4001-4009. | 2.9 | 24 |
| 12 | Self-driven highly responsive p-n junction InSe heterostructure near-infrared light detector. Photonics Research, 2022, 10, A97. | 3.4 | 27 |
| 13 | Programmable chalcogenide-based all-optical deep neural networks. Nanophotonics, 2022, 11, 4073-4088. | 2.9 | 29 |
| 14 | Electronic Bottleneck Suppression in Nextâ€Generation Networks with Integrated Photonic Digitalâ€toâ€Analog Converters. Advanced Photonics Research, 2021, 2, 2000033. | 1.7 | 28 |
| 15 | Effect of Strain in WS2 Monolayer Integrated Excitonic Photodetector. , 2021, , . | | 3 |
| 16 | Massively-parallel Amplitude-Only Fourier Optical Convolutional Neural Network. , 2021, , . | | 1 |
| 17 | Two-beam coupling by a hot electron nonlinearity. Optics Letters, 2021, 46, 428. | 1.7 | 8 |
| 18 | Photonic TPU & Memory for Machine Intelligence. , 2021, , . | | 0 |

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| 19 | Heterogeneously integrated ITO plasmonic Machâ€“Zehnder interferometric modulator on SOI. Scientific Reports, 2021, 11, 1287. | 1.6 | 44 |
| 20 | Symmetry perception with spiking neural networks. Scientific Reports, 2021, 11, 5776. | 1.6 | 16 |
| 21 | Induced homomorphism: Kirchhoffâ€™s law in photonics. Nanophotonics, 2021, 10, 1711-1721. | 2.9 | 10 |
| 22 | Towards lab-on-chip ultrasensitive ethanol detection using photonic crystal waveguide operating in the mid-infrared. Nanophotonics, 2021, 10, 1675-1682. | 2.9 | 29 |
| 23 | Performance Analysis of Integrated Electro-Optic Phase Modulators Based on Emerging Materials. IEEE Journal of Selected Topics in Quantum Electronics, 2021, 27, 1-11. | 1.9 | 9 |
| 24 | Approximate analog computing with metatronic circuits. Communications Physics, 2021, 4, . | 2.0 | 16 |
| 25 | Strain-Induced Spatially Resolved Charge Transport in 2H-MoTe2. ACS Applied Electronic Materials, 2021, 3, 3781-3788. | 2.0 | 11 |
| 26 | Emerging Materials Based Electro-Optic Phase Modulators. , 2021, , . | | 0 |
| 27 | VCSEL with multi-transverse cavities with bandwidth beyond 100ÂGHz. Nanophotonics, 2021, 10, 3779-3788. | 2.9 | 7 |
| 28 | Photonic Tensor Core and Nonvolatile Memory for Machine Intelligence. , 2021, , . | | 0 |
| 29 | Photonic Tensor Core and Nonvolatile Memory for Machine Intelligence. , 2021, , . | | 0 |
| 30 | Multi-level Nonvolatile Photonic Memories Using Broadband Transparent Phase change materials. , 2021, , . | | 3 |
| 31 | Fourier Optic Convolutional Neural Network. , 2021, , . | | 0 |
| 32 | Fourier Optical Convolutional Neural Network Accelerator. , 2021, , . | | 0 |
| 33 | GHz Plasmonic Broadband ITO MZI Modulator in Si Photonics. , 2021, , . | | 1 |
| 34 | An ITOâ€“graphene heterojunction integrated absorption modulator on Si-photonics for neuromorphic nonlinear activation. APL Photonics, 2021, 6, . | 3.0 | 33 |
| 35 | Highly Accurate, Reliable and Non-Contaminating Two-Dimensional Material Transfer System. , 2021, , . | | 0 |
| 36 | Optimizing Optical Convolution with Nonlinear Absorption. , 2021, , . | | 0 |

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| 37 | 1fJ/bit Coupling-based ITO Monolithic Modulator in Integrated Photonics. , 2021, , . | | 1 |
| 38 | Quantifying Information via Shannon Entropy in Spatially Structured Optical Beams. Research, 2021, 2021, 9780760. | 2.8 | 10 |
| 39 | PIC-based Binary-Weighting Parallel Digital-to-Analog Converter. , 2021, , . | | 0 |
| 40 | High Throughput Multi-kernel Fourier Optic Classifier. , 2021, , . | | 0 |
| 41 | Application-Specific Photonic Integrated Circuit. , 2021, , . | | 2 |
| 42 | Quantifying Information via Structural Complexity in Optical Beams Using Shannon Entropy. , 2021, , . | | 3 |
| 43 | Photonic Machine Intelligence Hardware: From Photonic Memory and Photonic TPU to Optical CNN. , 2021, , . | | 0 |
| 44 | Complex Exponential Neural Network for Optical System. , 2021, , . | | 9 |
| 45 | Observation and Active Control of a Collective Polariton Mode and Polaritonic Band Gap in Few-Layer WS<sub>2</sub> Strongly Coupled with Plasmonic Lattices. Nano Letters, 2020, 20, 790-798. | 4.5 | 25 |
| 46 | A Winograd-Based Integrated Photonics Accelerator for Convolutional Neural Networks. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-12. | 1.9 | 25 |
| 47 | Generation of helical topological exciton-polaritons. Science, 2020, 370, 600-604. | 6.0 | 97 |
| 48 | Photonic tensor cores for machine learning. Applied Physics Reviews, 2020, 7, . | 5.5 | 126 |
| 49 | A Design Methodology for Post-Mooreâ€™s Law Accelerators: The Case of a Photonic Neuromorphic Processor. , 2020, , . | | 2 |
| 50 | Strain-engineered high-responsivity MoTe2 photodetector for silicon photonic integrated circuits. Nature Photonics, 2020, 14, 578-584. | 15.6 | 172 |
| 51 | Biodegradable and Insoluble Cellulose Photonic Crystals and Metasurfaces. ACS Nano, 2020, 14, 9502-9511. | 7.3 | 36 |
| 52 | Compact Graphene Plasmonic Slot Photodetector on Silicon-on-Insulator with High Responsivity. ACS Photonics, 2020, 7, 932-940. | 3.2 | 63 |
| 53 | A Lateral MOS-Capacitor-Enabled ITO Machâ€“Zehnder Modulator for Beam Steering. Journal of Lightwave Technology, 2020, 38, 282-290. | 2.7 | 22 |
| 54 | OE-CAM: A Hybrid Opto-Electronic Content Addressable Memory. IEEE Photonics Journal, 2020, 12, 1-14. | 1.0 | 11 |

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|---|---|---|---|
| 55 | CLEAR: A Holistic Figure-of-Merit for Post- and Predicting Electronic and Photonic-based Compute-system Evolution. Scientific Reports, 2020, 10, 6482. | 1.6 | 3 |
| 56 | ROC. ACM Transactions on Parallel Computing, 2020, 7, 1-29. | 1.2 | 8 |
| 57 | Silicon nitride grating based planar spectral splitting concentrator for NIR light harvesting. Optics Express, 2020, 28, 21474. | 1.7 | 4 |
| 58 | Roadmap for gain-bandwidth-product enhanced photodetectors: opinion. Optical Materials Express, 2020, 10, 2192. | 1.6 | 11 |
| 59 | Sub-wavelength GHz-fast broadband ITO Machâ€“Zehnder modulator on silicon photonics. Optica, 2020, 7, 333. | 4.8 | 103 |
| 60 | Massively parallel amplitude-only Fourier neural network. Optica, 2020, 7, 1812. | 4.8 | 117 |
| 61 | Integrated photonic FFT for photonic tensor operations towards efficient and high-speed neural networks. Nanophotonics, 2020, 9, 4097-4108. | 2.9 | 17 |
| 62 | Primer on silicon neuromorphic photonic processors: architecture and compiler. Nanophotonics, 2020, 9, 4055-4073. | 2.9 | 29 |
| 63 | Hexagonal transverse-coupled-cavity VCSEL redefining the high-speed lasers. Nanophotonics, 2020, 9, 4743-4748. | 2.9 | 34 |
| 64 | Artificial Synapse with Mnemonic Functionality using GSST-based Photonic Integrated Memory. , 2020, , . | | 21 |
| 65 | 10^6 Channel parallelism Fourier-optic convolutional filter and neural network processor. , 2020, , . | | 0 |
| 66 | Broadband GHz ITO-based Plasmon MZI Modulator on Silicon Photonics. , 2020, , . | | 0 |
| 67 | Programmable Plasmonic Interferometer. , 2020, , . | | 0 |
| 68 | Massive parallelism Fourier-optic convolutional processor. , 2020, , . | | 0 |
| 69 | Strain-Engineered MoTe2 Photodetector in Silicon Photonics at 1550 nm. , 2020, , . | | 0 |
| 70 | 2D Material based Electro-Absorption Modulator in Si Photonics. , 2020, , . | | 4 |
| 71 | Efficient MoTe2 Slot-enhanced Photodetector based on Engineering Gain-Bandwidth-Product Scaling Laws. , 2020, , . | | 3 |
| 72 | Photonic Neural Activation Function Using An ITO Electro-Absorption Modulator. , 2020, , . | | 0 |

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| 73 | Intelligent Computing with Photonic Memories. , 2020, , . | | 0 |
| 74 | Strain Induced Enhanced Photodetector based on Few-layered MoTe2. , 2020, , . | | 0 |
| 75 | Î»-compact ITO Plasmonic Mach-Zehnder Modulator on Si. , 2020, , . | | 0 |
| 76 | Broadband Sub-Î» GHz ITO Plasmonic Mach-Zehnder Modulator in Silicon Photonics. , 2020, , . | | 9 |
| 77 | Million-channel parallelism Fourier-optic convolutional filter and neural network processor. , 2020, , . | | 6 |
| 78 | Multi-level Nonvolatile Photonic Memories Using Broadband Transparent Phase change materials. , 2020, , . | | 1 |
| 79 | Coherent parallel binary-weighted digital-to-analog converter in silicon photonics. , 2020, , . | | 0 |
| 80 | Silicon microring resonator waveguide-based graphene photodetector. Microsystem Technologies, 2019, 25, 319-328. | 1.2 | 9 |
| 81 | Towards integrated metatronics: a holistic approach on precise optical and electrical properties of Indium Tin Oxide. Scientific Reports, 2019, 9, 11279. | 1.6 | 53 |
| 82 | Integrated Nanophotonics Enabled Residue Number System (RNS) Arithmetic. , 2019, , . | | 0 |
| 83 | Fourier Optics Coprocessor for Image Processing and Convolutional Neural Network. , 2019, , . | | 0 |
| 84 | Roadmap on material-function mapping for photonic-electronic hybrid neural networks. APL Materials, 2019, 7, . | 2.2 | 42 |
| 85 | ITO-based electro-absorption modulator for photonic neural activation function. APL Materials, 2019, 7, . | 2.2 | 105 |
| 86 | A Spectrally Tunable Dielectric Subwavelength Grating based Broadband Planar Light Concentrator. Scientific Reports, 2019, 9, 11723. | 1.6 | 6 |
| 87 | Coupling-enhanced dual ITO layer electro-absorption modulator in silicon photonics. Nanophotonics, 2019, 8, 1559-1566. | 2.9 | 43 |
| 88 | A semi-empirical integrated microring cavity approach for 2D material optical index identification at 1.55 Î¼m. Nanophotonics, 2019, 8, 435-441. | 2.9 | 27 |
| 89 | 2D Material Printer: A Novel Deterministic Transfer Method for On-Chip Photonic Integration. , 2019, , . | | 0 |
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| 91 | Integrated Photonics Architectures for Residue Number System Computations. , 2019, , . | | 3 |
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| 94 | Two-pump optical parametric amplification in the S-band using a tellurite microstructured optical fiber. Indian Journal of Physics, 2019, 93, 101-105. | 0.9 | 4 |
| 95 | 2D material printer: a deterministic cross contamination-free transfer method for atomically layered materials. 2D Materials, 2019, 6, 015006. | 2.0 | 32 |
| 96 | Integrated photonics for NASA applications. , 2019, , . | | 11 |
| 97 | ITO Mach-Zehnder Modulator on Si. , 2019, , . | | 3 |
| 98 | One-to-Three Silicon Photonic Grid Power Splitter for Optical Mesh Solver. , 2019, , . | | 1 |
| 99 | Neuromorphic photonics with electro-absorption modulators. Optics Express, 2019, 27, 5181. | 1.7 | 86 |
| 100 | Loss and coupling tuning via heterogeneous integration of MoS2 layers in silicon photonics [Invited]. Optical Materials Express, 2019, 9, 751. | 1.6 | 32 |
| 101 | Silicon Microring Resonator Integrated MoTe2 Photodetector. , 2019, , . | | 0 |
| 102 | An ITO-based Mach-Zehnder Modulator with Lateral MOS-Capacitor on SOI Platform. , 2019, , . | | 1 |
| 103 | A Guide for Material and Design Choices for Electro-Optic Modulators. , 2019, , . | | 1 |
| 104 | Nanophotonics Based Residue Number System. , 2019, , . | | 0 |
| 105 | Optical Phased Arrays based on ITO Phase Shifter Modulator on Silicon Photonics. , 2019, , . | | 1 |
| 106 | MoTe2 Based Electro-optic Modulator on Mach-Zehnder Interferometer. , 2019, , . | | 1 |
| 107 | Silicon Resonant Cavity Enhanced MoTe2 Schottky Photodetector at 1.55 m. , 2019, , . | | 0 |
| 108 | Ultrasensitive Phototransistor Based on Multi-layered MoTe2. , 2019, , . | | 1 |

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| 109 | Fast and slow light generated by surface plasmon wave and gold grating coupling effects. Indian Journal of Physics, 2018, 92, 789-798. | 0.9 | 11 |
| 110 | 2D materials in electro-optic modulation: energy efficiency, electrostatics, mode overlap, material transfer and integration. Applied Physics A: Materials Science and Processing, 2018, 124, 1. | 1.1 | 9 |
| 111 | Hybrid Photonic-Plasmonic Nonblocking Broadband 5 Ã— 5 Router for Optical Networks. IEEE Photonics Journal, 2018, 10, 1-12. | 1.0 | 15 |
| 112 | Low-loss tunable 1D ITO-slot photonic crystal nanobeam cavity. Journal of Optics (United Kingdom), 2018, 20, 054003. | 1.0 | 28 |
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| 114 | Neural Network Activation Functions with Electro-Optic Absorption Modulators. , 2018, , . | | 3 |
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| 127 | Wideband Multi-Arm Bowtie Antenna for Millimeter Wave Electro-Optic Sensors and Receivers. Journal of Lightwave Technology, 2018, 36, 3418-3426. | 2.7 | 11 |
| 128 | Identifying mirror symmetry density with delay in spiking neural networks (Conference Presentation). , 2018, , . | | 2 |
| 129 | All-optical nonlinear activation function for photonic neural networks [Invited]. Optical Materials Express, 2018, 8, 3851. | 1.6 | 162 |
| 130 | Photonic Neural Network Nonlinear Activation Functions by Electrooptic Absorption Modulators. , 2018, , . | | 1 |
| 131 | Purcell Enhancement in 1-D ITO-slot Photonic Crystal Nanobeam Cavity. , 2018, , . | | 0 |
| 132 | ITO-based Mach Zehnder Modulator. , 2018, , . | | 1 |
| 133 | Two-Dimensional Material-Based Mode Confinement Engineering in Electro-Optic Modulators. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 81-88. | 1.9 | 59 |
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| 136 | Active material, optical mode and cavity impact on nanoscale electro-optic modulation performance. Nanophotonics, 2017, 7, 455-472. | 2.9 | 55 |
| 137 | A deterministic guide for material and mode dependence of on-chip electro-optic modulator performance. Solid-State Electronics, 2017, 136, 92-101. | 0.8 | 41 |
| 138 | Optical computing. Nanophotonics, 2017, 6, 503-505. | 2.9 | 42 |
| 139 | Towards On-Chip Optical FFTs for Convolutional Neural Networks. , 2017, , . | | 4 |
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| 141 | Fundamental Physical Scaling Laws of Nanophotonics. , 2017, , . | | 1 |
| 142 | Graphene-based solitons for spatial division multiplexed switching. Optics Letters, 2017, 42, 787. | 1.7 | 4 |
| 143 | Sub 1-Volt Graphene-based Plasmonic Electroabsorption Modulator on Silicon. , 2017, , . | | 1 |
| 144 | Sub-wavelength Plasmonic Graphene-based Slot Electro-optic Modulator. , 2017, , . | | 1 |

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| 145 | Sub-voltage Graphene-Plasmon Based Electro-absorption Modulator. , 2017, , . | | 3 |
| 146 | CLEAR: A Holistic Figure-of-Merit for Electronic, Photonic, Plasmonic and Hybrid Photonic-Plasmonic Compute System Comparison. , 2017, , . | | 1 |
| 147 | Implications of Active Material and Optical Mode on Nanoscale Electro-Optic Modulation. , 2017, , . | | 4 |
| 148 | Strong Photon Absorption in 2-D Material-Based Spiral Photovoltaic Cells. MRS Advances, 2016, 1, 3915-3921. | 0.5 | 2 |
| 149 | Fundamental Scaling Laws in Nanophotonics. Scientific Reports, 2016, 6, 37419. | 1.6 | 56 |
| 150 | Two-dimensional design and analysis of trench-coupler based Silicon Mach-Zehnder thermo-optic switch. Optics Express, 2016, 24, 15845. | 1.7 | 36 |
| 151 | Electroluminescence Enhancement via Grating on a Si-based Plasmonic Metal-Insulator-Semiconductor Tunnel Junction. MRS Advances, 2016, 1, 1709-1713. | 0.5 | 2 |
| 152 | Optimization of Data Center Battery Storage Investments for Microgrid Cost Savings, Emissions Reduction, and Reliability Enhancement. IEEE Transactions on Industry Applications, 2016, 52, 2053-2060. | 3.3 | 45 |
| 153 | Integrated Nanocavity Plasmon Light Sources for On-Chip Optical Interconnects. ACS Photonics, 2016, 3, 233-242. | 3.2 | 67 |
| 154 | Physical Scaling Laws of Nanophotonics: Case Photon Conversion. , 2016, , . | | 0 |
| 155 | Bit Flow Density (BFD): An Effective Performance FOM for Optical On-chip Interconnects. , 2016, , . | | 0 |
| 156 | Monolithic IIIâ€“V on Silicon Plasmonic Nanolaser Structure for Optical Interconnects. Scientific Reports, 2015, 5, 14067. | 1.6 | 40 |
| 157 | A compact plasmonic MOS-based 2Ã—2 electro-optic switch. Nanophotonics, 2015, 4, 261-268. | 2.9 | 66 |
| 158 | The Case for Hybrid Photonic Plasmonic Interconnects (HyPPIs): Low-Latency Energy-and-Area-Efficient On-Chip Interconnects. IEEE Photonics Journal, 2015, 7, 1-14. | 1.0 | 21 |
| 159 | Indium-Tin-Oxide for High-performance Electro-optic Modulation. Nanophotonics, 2015, 4, 198-213. | 2.9 | 180 |
| 160 | Optimization of data center battery storage investments for microgrid cost savings, emissions reduction, and reliability enhancement. , 2015, , . | | 3 |
| 161 | Sub-wavelength Si-based plasmonic light emitting tunnel junction. Proceedings of SPIE, 2015, , . | 0.8 | 0 |
| 162 | Review and perspective on ultrafast wavelength-size electro-optic modulators. Laser and Photonics Reviews, 2015, 9, 172-194. | 4.4 | 173 |

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| 163 | Enhanced photon absorption in spiral nanostructured solar cells using layered 2D materials. Nanotechnology, 2015, 26, 344005. | 1.3 | 40 |
| 164 | Enhanced interaction strength for a square plasmon resonator embedded in a photonic crystal nanobeam cavity. Journal of Nanophotonics, 2015, 9, 093790. | 0.4 | 14 |
| 165 | High-performance sub-wavelength Si plasmonic modulators. , 2015, , . | | 0 |
| 166 | Electrically-driven carbon nanotube-based plasmonic laser on silicon. Optical Materials Express, 2015, 5, 1910. | 1.6 | 24 |
| 167 | Photonic-Plasmonic Hybrid Interconnects: a Low-latency Energy and Footprint Efficient Link. , 2015, , . | | 4 |
| 168 | A performance comparison of ITO and graphene-based electro-optic modulators. , 2014, , . | | 0 |
| 169 | Î»-Size ITO and Graphene-Based Electro-Optic Modulators on SOI. IEEE Journal of Selected Topics in Quantum Electronics, 2014, 20, 40-49. | 1.9 | 67 |
| 170 | Strong ITO index Modulation for Switching Devices. , 2014, , . | | 2 |
| 171 | Plasmon lasers: coherent light source at molecular scales. Laser and Photonics Reviews, 2013, 7, 1-21. | 4.4 | 248 |
| 172 | A compact plasmonic MOS-based electro-optic switch. , 2013, , . | | 0 |
| 173 | A Sub-$lambda$-Size Modulator Beyond the Efficiency-Loss Limit. IEEE Photonics Journal, 2013, 5, 2202411-2202411. | 1.0 | 39 |
| 174 | Ultra-compact silicon nanophotonic modulator with broadband response. Nanophotonics, 2012, 1, 17-22. | 2.9 | 372 |
| 175 | Toward integrated plasmonic circuits. MRS Bulletin, 2012, 37, 728-738. | 1.7 | 269 |
| 176 | Multiplexed and Electrically Modulated Plasmon Laser Circuit. Nano Letters, 2012, 12, 5396-5402. | 4.5 | 106 |
| 177 | Strongly Enhanced Molecular Fluorescence inside a Nanoscale Waveguide Gap. Nano Letters, 2011, 11, 4907-4911. | 4.5 | 94 |
| 178 | Spotlight on Plasmon Lasers. Science, 2011, 333, 709-710. | 6.0 | 95 |
| 179 | Room-temperature sub-diffraction-limited plasmon laser by total internal reflection. Nature Materials, 2011, 10, 110-113. | 13.3 | 546 |
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| 183 | Plasmon lasers at deep subwavelength scale. Nature, 2009, 461, 629-632. | 13.7 | 2,277 |
| 184 | Plasmonic Fabry-PÃ©rot Nanocavity. Nano Letters, 2009, 9, 3489-3493. | 4.5 | 148 |
| 185 | A hybrid plasmonic waveguide for subwavelength confinement and long-range propagation. Nature Photonics, 2008, 2, 496-500. | 15.6 | 1,819 |