# RamÃ³n Collazo

List of Publications by Year
in descending order

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|---|---|---|---|
| 118 papers | 2,427 citations | 201575 27 h-index | 233338 45 g-index |
| 119 all docs | 119 docs citations | 119 times ranked | 1963 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Progress on nâ€type doping of AlGaN alloys on AlN single crystal substrates for UV optoelectronic applications. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 2031-2033. | 0.8 | 153 |
| 2 | On the origin of the 265â€‰nm absorption band in AlN bulk crystals. Applied Physics Letters, 2012, 100, . | 1.5 | 137 |
| 3 | Doping and compensation in Al-rich AlGaN grown on single crystal AlN and sapphire by MOCVD. Applied Physics Letters, 2018, 112, . | 1.5 | 107 |
| 4 | Lasing and longitudinal cavity modes in photo-pumped deep ultraviolet AlGaN heterostructures. Applied Physics Letters, 2013, 102, . | 1.5 | 104 |
| 5 | On compensation in Si-doped AlN. Applied Physics Letters, 2018, 112, . | 1.5 | 97 |
| 6 | Atomically Thin MoS<sub>2</sub> Narrowband and Broadband Light Superabsorbers. ACS Nano, 2016, 10, 7493-7499. | 7.3 | 82 |
| 7 | Vacancy compensation and related donor-acceptor pair recombination in bulk AlN. Applied Physics Letters, 2013, 103, . | 1.5 | 80 |
| 8 | The effect of polarity and surface states on the Fermi level at III-nitride surfaces. Journal of Applied Physics, 2014, 116, . | 1.1 | 75 |
| 9 | Polarity control and growth of lateral polarity structures in AlN. Applied Physics Letters, 2013, 102, . | 1.5 | 60 |
| 10 | The role of the carbon-silicon complex in eliminating deep ultraviolet absorption in AlN. Applied Physics Letters, 2014, 104, . | 1.5 | 59 |
| 11 | Stimulated emission and optical gain in AlGaN heterostructures grown on bulk AlN substrates. Journal of Applied Physics, 2014, 115, . | 1.1 | 56 |
| 12 | Strain in Si doped GaN and the Fermi level effect. Applied Physics Letters, 2011, 98, 202101. | 1.5 | 51 |
| 13 | Fermi level control of compensating point defects during metalorganic chemical vapor deposition growth of Si-doped AlGaN. Applied Physics Letters, 2014, 105, 222101. | 1.5 | 47 |
| 14 | Point defect reduction in MOCVD (Al)GaN by chemical potential control and a comprehensive model of C incorporation in GaN. Journal of Applied Physics, 2017, 122, . | 1.1 | 47 |
| 15 | Temperature dependent photoluminescence of lateral polarity junctions of metal organic chemical vapor deposition grown GaN. Journal of Applied Physics, 2011, 110, . | 1.1 | 45 |
| 16 | Ge doped GaN with controllable high carrier concentration for plasmonic applications. Applied Physics Letters, 2013, 103, . | 1.5 | 45 |
| 17 | Defect-free Ni/GaN Schottky barrier behavior with high temperature stability. Applied Physics Letters, 2017, 110, . | 1.5 | 38 |
| 18 | Characterization of dislocation arrays in AlN single crystals grown by PVT. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 1545-1547. | 0.8 | 37 |

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|---|---|---|---|
| 19 | Ni/Au Schottky diodes on Al<sub>x</sub>Ga<sub>1â€x</sub>N (0.7<x<1) grown on AlN single crystal substrates. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 2407-2409. | 0.8 | 37 |
| 20 | Optical identification of silicon as a shallow donor in MOVPE grown homoepitaxial AlN. Physica Status Solidi (B): Basic Research, 2012, 249, 511-515. | 0.7 | 34 |
| 21 | Structure of Ultrathin Native Oxides on IIIâ€“Nitride Surfaces. ACS Applied Materials & Interfaces, 2018, 10, 10607-10611. | 4.0 | 34 |
| 22 | The role of chemical potential in compensation control in Si:AlGaN. Journal of Applied Physics, 2020, 127, . | 1.1 | 34 |
| 23 | High gain, large area, and solar blind avalanche photodiodes based on Al-rich AlGaN grown on AlN substrates. Applied Physics Letters, 2020, 116, . | 1.5 | 33 |
| 24 | Schottky contact formation on polar and non-polar AlN. Journal of Applied Physics, 2014, 116, . | 1.1 | 32 |
| 25 | X-ray characterization of composition and relaxation of AlxGa1â^'xN(â‰xâ‰1) layers grown on GaN/sapphire templates by low pressure organometallic vapor phase epitaxy. Journal of Applied Physics, 2010, 108, . | 1.1 | 30 |
| 26 | Homoepitaxial AlN thin films deposited on m-plane ( 11Â¯00) AlN substrates by metalorganic chemical vapor deposition. Journal of Applied Physics, 2014, 116, 133517. | 1.1 | 30 |
| 27 | Sapphire decomposition and inversion domains in N-polar aluminum nitride. Applied Physics Letters, 2014, 104, . | 1.5 | 29 |
| 28 | Persistent Photoconductivity, Nanoscale Topography, and Chemical Functionalization Can Collectively Influence the Behavior of PC12 Cells on Wide Bandgap Semiconductor Surfaces. Small, 2017, 13, 1700481. | 5.2 | 29 |
| 29 | Recovery kinetics in high temperature annealed AlN heteroepitaxial films. Journal of Applied Physics, 2020, 127, . | 1.1 | 27 |
| 30 | The influence of point defects on the thermal conductivity of AlN crystals. Journal of Applied Physics, 2018, 123, 185107. | 1.1 | 26 |
| 31 | Fermi Level Control of Point Defects During Growth of Mg-Doped GaN. Journal of Electronic Materials, 2013, 42, 815-819. | 1.0 | 25 |
| 32 | Thermal conductivity of GaN single crystals: Influence of impurities incorporated in different growth processes. Journal of Applied Physics, 2018, 124, . | 1.1 | 25 |
| 33 | Quasi-phase-matched second harmonic generation of UV light using AlN waveguides. Applied Physics Letters, 2019, 114, . | 1.5 | 25 |
| 34 | Status of the growth and fabrication of AlGaN-based UV laser diodes for near and mid-UV wavelength. Journal of Materials Research, 2021, 36, 4638-4664. | 1.2 | 25 |
| 35 | Sharp bound and free exciton lines from homoepitaxial AlN. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 1520-1522. | 0.8 | 24 |
| 36 | Impact of gallium supersaturation on the growth of Nâ€polar GaN. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 2078-2080. | 0.8 | 24 |

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|---|---|---|---|
| 37 | Surface topography and chemistry shape cellular behavior on wide band-gap semiconductors. Acta Biomaterialia, 2014, 10, 2455-2462. | 4.1 | 24 |
| 38 | High free carrier concentration in p-GaN grown on AlN substrates. Applied Physics Letters, 2017, 111, . | 1.5 | 22 |
| 39 | A thermodynamic supersaturation model for the growth of aluminum gallium nitride by metalorganic chemical vapor deposition. Journal of Applied Physics, 2018, 124, . | 1.1 | 21 |
| 40 | Exciton transitions and oxygen as a donor in m-plane AlN homoepitaxial films. Journal of Applied Physics, 2014, 115, . | 1.1 | 20 |
| 41 | Noninvasive Stimulation of Neurotypic Cells Using Persistent Photoconductivity of Gallium Nitride. ACS Omega, 2018, 3, 615-621. | 1.6 | 20 |
| 42 | Implementation of the GaN lateral polarity junction in a MESFET utilizing polar doping selectivity. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 45-48. | 0.8 | 19 |
| 43 | Design of AlGaN-based quantum structures for low threshold UVC lasers. Journal of Applied Physics, 2019, 126, 223101. | 1.1 | 19 |
| 44 | The effect of illumination power density on carbon defect configuration in silicon doped GaN. Journal of Applied Physics, 2016, 120, . | 1.1 | 17 |
| 45 | On Ni/Au Alloyed Contacts to Mg-Doped GaN. Journal of Electronic Materials, 2018, 47, 305-311. | 1.0 | 17 |
| 46 | Growth and characterization of Al<sub>x</sub>Ga<sub>1â^'x</sub>N lateral polarity structures. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 1039-1042. | 0.8 | 15 |
| 47 | Nanoscale topography, semiconductor polarity and surface functionalization: additive and cooperative effects on PC12 cell behavior. RSC Advances, 2016, 6, 97873-97881. | 1.7 | 15 |
| 48 | Complexes and compensation in degenerately donor doped GaN. Applied Physics Letters, 2020, 117, . | 1.5 | 15 |
| 49 | Substrate Modification during Chemical Vapor Deposition of hBN on Sapphire. ACS Applied Materials & Interfaces, 2021, 13, 54516-54526. | 4.0 | 15 |
| 50 | Defect quasi Fermi level control-based CN reduction in GaN: Evidence for the role of minority carriers. Applied Physics Letters, 2017, 111, 152101. | 1.5 | 14 |
| 51 | The role of transient surface morphology on composition control in AlGaN layers and wells. Applied Physics Letters, 2019, 114, . | 1.5 | 14 |
| 52 | Observation of carrier concentration dependent spintronic terahertz emission from n-GaN/NiFe heterostructures. Applied Physics Letters, 2020, 117, . | 1.5 | 14 |
| 53 | The nature of the DX state in Ge-doped AlGaN. Applied Physics Letters, 2020, 116, . | 1.5 | 14 |
| 54 | Self-compensation in heavily Ge doped AlGaN: A comparison to Si doping. Applied Physics Letters, 2021, 118, . | 1.5 | 14 |

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|---|---|---|---|
| 55 | Epitaxial calcium oxide films deposited on gallium nitride surfaces. Journal of Vacuum Science & Technology B, 2007, 25, 1029. | 1.3 | 13 |
| 56 | Critical examination of growth rate for magnesium oxide (MgO) thin films deposited by molecular beam epitaxy with a molecular oxygen flux. Journal of Materials Research, 2010, 25, 670-679. | 1.2 | 11 |
| 57 | Properties of AlN based lateral polarity structures. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 261-264. | 0.8 | 11 |
| 58 | Optical signatures of silicon and oxygen related DX centers in AlN. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1600749. | 0.8 | 10 |
| 59 | Second-Harmonic Generation of Blue Light in GaN Waveguides. Applied Sciences (Switzerland), 2018, 8, 1218. | 1.3 | 10 |
| 60 | Defect chemistry of nano-grained barium titanate films. Journal of Materials Science, 2008, 43, 38-42. | 1.7 | 9 |
| 61 | Surface preparation of non-polar single-crystalline AlN substrates. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 454-457. | 0.8 | 9 |
| 62 | Smooth cubic commensurate oxides on gallium nitride. Journal of Applied Physics, 2014, 115, . | 1.1 | 9 |
| 63 | A conduction model for contacts to Si-doped AlGaN grown on sapphire and single-crystalline AlN. Journal of Applied Physics, 2015, 117, . | 1.1 | 9 |
| 64 | Chemical treatment effects on Schottky contacts to metalorganic chemical vapor deposited n-type N-polar GaN. Journal of Applied Physics, 2020, 128, 064501. | 1.1 | 9 |
| 65 | Pinning of energy transitions of defects, complexes, and surface states in AlGaN alloys. Applied Physics Letters, 2020, 116, . | 1.5 | 9 |
| 66 | Largeâ€Area, Solarâ€Blind, Subâ€250 nm Detection AlGaN Avalanche Photodiodes Grown on AlN Substrates. Physica Status Solidi - Rapid Research Letters, 2022, 16, . | 1.2 | 9 |
| 67 | Growth of highly resistive Ga-polar GaN by LP-MOVPE. Physica Status Solidi C: Current Topics in Solid State Physics, 2007, 4, 2260-2263. | 0.8 | 8 |
| 68 | Fabrication of a GaN p/n lateral polarity junction by polar doping selectivity. Physica Status Solidi C: Current Topics in Solid State Physics, 2008, 5, 1977-1979. | 0.8 | 8 |
| 69 | GaN lateral polar junction arrays with 3D control of doping by supersaturation modulated growth: A path toward III-nitride superjunctions. Journal of Applied Physics, 2022, 131, 015703. | 1.1 | 8 |
| 70 | Optical properties of InN grown on templates with controlled surface polarities. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 2351-2354. | 0.8 | 7 |
| 71 | Long-term stability assessment of AlGaN/GaN field effect transistors modified with peptides: Device characteristics vs. surface properties. AIP Advances, 2015, 5, 097102. | 0.6 | 7 |
| 72 | Improvement in detection limit for time-of-flight SIMS analysis of dopants in GaN structures. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2018, 36, 03F102. | 0.6 | 7 |

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|---|---|---|---|
| 73 | Variably doped nanostructured gallium nitride surfaces can serve as biointerfaces for neurotypic PC12 cells and alter their behavior. RSC Advances, 2018, 8, 36722-36730. | 1.7 | 7 |
| 74 | Impact of impurity-based phonon resonant scattering on thermal conductivity of single crystalline GaN. Applied Physics Letters, 2020, 117, 082101. | 1.5 | 7 |
| 75 | Polarity characterization by anomalous x-ray dispersion of ZnO films and GaN lateral polar structures. Journal of Applied Physics, 2014, 115, 044912. | 1.1 | 6 |
| 76 | Plasma enhanced chemical vapor deposition of SiO2and SiNxon AlGaN: Band offsets and interface studies as a function of Al composition. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2018, 36, 061101. | 0.9 | 6 |
| 77 | Weak localization and dimensional crossover in compositionally graded AlxGa1â^'xN. Applied Physics Letters, 2021, 118, . | 1.5 | 6 |
| 78 | Tuning Microbial Activity via Programmatic Alteration of Cell/Substrate Interfaces. Advanced Materials, 2021, 33, e2004655. | 11.1 | 6 |
| 79 | (Invited) A Path Toward Vertical GaN Superjunction Devices. ECS Transactions, 2020, 98, 69-79. | 0.3 | 6 |
| 80 | Bulk and Surface Electronic Properties of Inorganic Materials: Tools to Guide Cellular Behavior. Small Methods, 2018, 2, 1800016. | 4.6 | 5 |
| 81 | Characterization of Pseudomonas aeruginosa Films on Different Inorganic Surfaces before and after UV Light Exposure. Langmuir, 2018, 34, 10806-10815. | 1.6 | 5 |
| 82 | Behavior of E. coli with Variable Surface Morphology Changes on Charged Semiconductor Interfaces. ACS Applied Bio Materials, 2019, 2, 4044-4051. | 2.3 | 5 |
| 83 | On the Ge shallow-to-deep level transition in Al-rich AlGaN. Journal of Applied Physics, 2021, 130, . | 1.1 | 5 |
| 84 | Vacancy defects in UVâ€transparent HVPEâ€AlN. Physica Status Solidi C: Current Topics in Solid State Physics, 2014, 11, 405-407. | 0.8 | 4 |
| 85 | Native oxide reconstructions on AlN and GaN (0001) surfaces. Journal of Applied Physics, 2021, 129, . | 1.1 | 4 |
| 86 | Polarity Control of GaN Films Grown by Metal Organic Chemical Vapor Deposition on (0001) Sapphire Substrates. Materials Research Society Symposia Proceedings, 2004, 831, 25. | 0.1 | 3 |
| 87 | Growth of Large AlN Single Crystals Along the [0001] Direction. Materials Research Society Symposia Proceedings, 2005, 892, 448. | 0.1 | 3 |
| 88 | Lateral epitaxial overgrowth of nitrogen polar GaN on smooth nitrogen polar GaN templates by metalorganic chemical vapor deposition. Journal of Applied Physics, 2012, 112, . | 1.1 | 3 |
| 89 | Status and challenges in deep UV semiconductor lasers. , 2015, , . | | 3 |
| 90 | Selective area epitaxy of magnesium oxide thin films on gallium nitride surfaces. Journal of Materials Research, 2016, 31, 36-45. | 1.2 | 3 |

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|---|---|---|---|
| 91 | Al Rich AlGaN Based APDs on Single Crystal AlN with Solar Blindness and Room Temperature Operation. , 2019, , . | | 3 |
| 92 | Study of Dislocations in Homoepitaxially and Heteroepitaxially Grown AlN Layers. Physica Status Solidi (A) Applications and Materials Science, 2020, 217, 2000465. | 0.8 | 3 |
| 93 | On the characteristics of N-polar GaN Schottky barrier contacts with LPCVD SiN interlayers. Applied Physics Letters, 2021, 118, . | 1.5 | 3 |
| 94 | Direct Observation of the Polarity Control Mechanism in Aluminum Nitride Grown on Sapphire by Aberration Corrected Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2014, 20, 162-163. | 0.2 | 2 |
| 95 | Design Challenges for Mid-UV Laser Diodes. , 2018, , . | | 2 |
| 96 | Modulating the Stress Response of E. coli at GaN Interfaces Using Surface Charge, Surface Chemistry, and Genetic Mutations. ACS Applied Bio Materials, 2020, 3, 7211-7218. | 2.3 | 2 |
| 97 | Polarity Control of LP-MOVPE GaN using N2 the Carrier Gas. Materials Research Society Symposia Proceedings, 2005, 892, 620. | 0.1 | 2 |
| 98 | HIGH FIELD TRANSPORT IN AlN. International Journal of High Speed Electronics and Systems, 2004, 14, 155-174. | 0.3 | 1 |
| 99 | Highly Oriented Diamond Films Grown at High Growth Rate. Materials Research Society Symposia Proceedings, 2006, 956, 1. | 0.1 | 1 |
| 100 | HgNO3 sensitivity of AlGaN/GaN field effect transistors functionalized with phytochelating peptides. AIP Advances, 2016, 6, 065105. | 0.6 | 1 |
| 101 | Stability and Reliability of III-Nitride Based Biosensors. , 2016, , 149-196. | | 1 |
| 102 | Probing collective oscillation ofd-orbital electrons at the nanoscale. Applied Physics Letters, 2018, 112, 061102. | 1.5 | 1 |
| 103 | Cathodoluminescence of silicon doped aluminum nitride with scanning transmission electron microscopy. APL Materials, 2020, 8, . | 2.2 | 1 |
| 104 | Oxidative Stress Transcriptional Responses of Escherichia coli at GaN Interfaces. ACS Applied Bio Materials, 2020, 3, 9073-9081. | 2.3 | 1 |
| 105 | Hot Electron Transport in AlN. Materials Research Society Symposia Proceedings, 2000, 639, 11331. | 0.1 | 0 |
| 106 | Electron transport in AlN under high electric fields. Materials Research Society Symposia Proceedings, 2001, 693, 666. | 0.1 | 0 |
| 107 | Observations of electron velocity overshoot during high-field transport in AlN. Materials Research Society Symposia Proceedings, 2002, 743, L10.2.1. | 0.1 | 0 |
| 108 | Self-oriented Growth of GaN Films on Molten Gallium. Materials Research Society Symposia Proceedings, 2004, 831, 182. | 0.1 | 0 |

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| 109 | Advantages and limitations of UV optoelectronics on AlN substrates. , 2015, , . | | 0 |
| 110 | Structure and Chemistry of Oxide Surface Reconstructions in III-Nitrides Observed using STEM EELS. Microscopy and Microanalysis, 2017, 23, 1444-1445. | 0.2 | 0 |
| 111 | Au:Ga Alloyed Clusters to Enhance Al Contacts to P-type GaN. , 2018, , . | | 0 |
| 112 | On contacts to III-nitride deep-UV emitters. , 2018, , . | | 0 |
| 113 | Quantum Well-Width Dependence Study on AlGaN Based UVC Laser. , 2019, , . | | 0 |
| 114 | Temperature dependence of electronic bands in Al/GaN by utilization of invariant deep defect transition energies. Applied Physics Letters, 2021, 119, 022101. | 1.5 | 0 |
| 115 | HIGH FIELD TRANSPORT IN <font>AlN</font>. Selected Topics in Electornics and Systems, 2004, , 155-174. | 0.2 | 0 |
| 116 | (Invited) Ion Implantation and Polarity Control: Paths Toward a III-Nitride Superjunction. ECS Meeting Abstracts, 2021, MA2021-02, 983-983. | 0.0 | 0 |
| 117 | Schottky contacts to N-polar GaN with SiN interlayer for elevated temperature operation. Applied Physics Letters, 2022, 120, . | 1.5 | 0 |
| 118 | (Invited, Digital Presentation) Exploring Interfaces and Polarity to Realize Vertical III-Nitride Superjunction Devices. ECS Meeting Abstracts, 2022, MA2022-01, 1313-1313. | 0.0 | 0 |