# Alexei Belianinov

## List of Publications by Year in descending order



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|---|---|---|---|
| 92 papers | 2,649 citations | 186265 28 h-index | 197818 49 g-index |
| 93 all docs | 93 docs citations | 93 times ranked | 4362 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Chemical nature of ferroelastic twin domains in CH3NH3PbI3 perovskite. Nature Materials, 2018, 17, 1013-1019. | 27.5 | 183 |
| 2 | Unraveling the Mechanism of Nanoscale Mechanical Reinforcement in Glassy Polymer Nanocomposites. Nano Letters, 2016, 16, 3630-3637. | 9.1 | 142 |
| 3 | Atomistic-Scale Simulations of Defect Formation in Graphene under Noble Gas Ion Irradiation. ACS Nano, 2016, 10, 8376-8384. | 14.6 | 113 |
| 4 | Memristive Ion Channel-Doped Biomembranes as Synaptic Mimics. ACS Nano, 2018, 12, 4702-4711. | 14.6 | 107 |
| 5 | Big, Deep, and Smart Data in Scanning Probe Microscopy. ACS Nano, 2016, 10, 9068-9086. | 14.6 | 103 |
| 6 | Directing Matter: Toward Atomic-Scale 3D Nanofabrication. ACS Nano, 2016, 10, 5600-5618. | 14.6 | 99 |
| 7 | Focused helium-ion beam irradiation effects on electrical transport properties of few-layer WSe2: enabling nanoscale direct write homo-junctions. Scientific Reports, 2016, 6, 27276. | 3.3 | 99 |
| 8 | Deciphering Halogen Competition in Organometallic Halide Perovskite Growth. Journal of the American Chemical Society, 2016, 138, 5028-5035. | 13.7 | 92 |
| 9 | Nanoforging Single Layer MoSe2 Through Defect Engineering with Focused Helium Ion Beams. Scientific Reports, 2016, 6, 30481. | 3.3 | 82 |
| 10 | Big data and deep data in scanning and electron microscopies: deriving functionality from multidimensional data sets. Advanced Structural and Chemical Imaging, 2015, 1, 6. | 4.0 | 74 |
| 11 | Enhancing Ion Migration in Grain Boundaries of Hybrid Organicâ€“Inorganic Perovskites by Chlorine. Advanced Functional Materials, 2017, 27, 1700749. | 14.9 | 74 |
| 12 | Deep Data Analysis of Conductive Phenomena on Complex Oxide Interfaces: Physics from Data Mining. ACS Nano, 2014, 8, 6449-6457. | 14.6 | 73 |
| 13 | High-T<sub>c</sub> Layered Ferrielectric Crystals by Coherent Spinodal Decomposition. ACS Nano, 2015, 9, 12365-12373. | 14.6 | 67 |
| 14 | Engineering the thermal conductivity along an individual silicon nanowire by selective helium ion irradiation. Nature Communications, 2017, 8, 15919. | 12.8 | 65 |
| 15 | Identification of phases, symmetries and defects through local crystallography. Nature Communications, 2015, 6, 7801. | 12.8 | 63 |
| 16 | Highly enhanced ferroelectricity in HfO <sub>2</sub> -based ferroelectric thin film by light ion bombardment. Science, 2022, 376, 731-738. | 12.6 | 58 |
| 17 | High Conduction Hopping Behavior Induced in Transition Metal Dichalcogenides by Percolating Defect Networks: Toward Atomically Thin Circuits. Advanced Functional Materials, 2017, 27, 1702829. | 14.9 | 52 |
| 18 | Complete information acquisition in dynamic force microscopy. Nature Communications, 2015, 6, 6550. | 12.8 | 49 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Better Catalysts through Microscopy: Mesoscale M1/M2 Intergrowth in Molybdenumâ€“Vanadium Based Complex Oxide Catalysts for Propane Ammoxidation. ACS Nano, 2015, 9, 3470-3478. | 14.6 | 47 |
| 20 | Full data acquisition in Kelvin Probe Force Microscopy: Mapping dynamic electric phenomena in real space. Scientific Reports, 2016, 6, 30557. | 3.3 | 47 |
| 21 | Domain Wall Motion Across Various Grain Boundaries in Ferroelectric Thin Films. Journal of the American Ceramic Society, 2015, 98, 1848-1857. | 3.8 | 42 |
| 22 | Role of Associated Defects in Oxygen Ion Conduction and Surface Exchange Reaction for Epitaxial Samaria-Doped Ceria Thin Films as Catalytic Coatings. ACS Applied Materials & Interfaces, 2016, 8, 14613-14621. | 8.0 | 39 |
| 23 | Multifrequency spectrum analysis using fully digital G Mode-Kelvin probe force microscopy. Nanotechnology, 2016, 27, 105706. | 2.6 | 36 |
| 24 | Effect of Doping on Surface Reactivity and Conduction Mechanism in Samarium-Doped Ceria Thin Films. ACS Nano, 2014, 8, 12494-12501. | 14.6 | 34 |
| 25 | Mapping internal structure of coal by confocal micro-Raman spectroscopy and scanning microwave microscopy. Fuel, 2014, 126, 32-37. | 6.4 | 34 |
| 26 | Co-registered Topographical, Band Excitation Nanomechanical, and Mass Spectral Imaging Using a Combined Atomic Force Microscopy/Mass Spectrometry Platform. ACS Nano, 2015, 9, 4260-4269. | 14.6 | 31 |
| 27 | Nonâ€Equilibrium Synthesis of Highly Active Nanostructured, Oxygenâ€Incorporated Amorphous Molybdenum Sulfide HER Electrocatalyst. Small, 2020, 16, e2004047. | 10.0 | 29 |
| 28 | Full information acquisition in piezoresponse force microscopy. Applied Physics Letters, 2015, 107, 263102. | 3.3 | 28 |
| 29 | Correlated Materials Characterization via Multimodal Chemical and Functional Imaging. ACS Nano, 2018, 12, 11798-11818. | 14.6 | 28 |
| 30 | Dynamic behavior of CH3NH3PbI3 perovskite twin domains. Applied Physics Letters, 2018, 113, . | 3.3 | 27 |
| 31 | Fundamental limitation to the magnitude of piezoelectric response of â¨001â©pc textured K0.5Na0.5NbO3 ceramic. Applied Physics Letters, 2014, 104, . | 3.3 | 26 |
| 32 | Defective Interfaces in Yttrium-Doped Barium Zirconate Films and Consequences on Proton Conduction. Nano Letters, 2015, 15, 2343-2349. | 9.1 | 25 |
| 33 | G-mode magnetic force microscopy: Separating magnetic and electrostatic interactions using big data analytics. Applied Physics Letters, 2016, 108, . | 3.3 | 24 |
| 34 | Lightâ€Ferroic Interaction in Hybrid Organicâ€“Inorganic Perovskites. Advanced Optical Materials, 2019, 7, 1901451. | 7.3 | 24 |
| 35 | Constraining Data Mining with Physical Models: Voltage- and Oxygen Pressure-Dependent Transport in Multiferroic Nanostructures. Nano Letters, 2015, 15, 6650-6657. | 9.1 | 23 |
| 36 | Noble gas ion beams in materials science for future applications and devices. MRS Bulletin, 2017, 42, 660-666. | 3.5 | 23 |

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| 37 | Rapid mapping of polarization switching through complete information acquisition. Nature Communications, 2016, 7, 13290. | 12.8 | 21 |
| 38 | Graphene engineering by neon ion beams. Nanotechnology, 2016, 27, 125302. | 2.6 | 21 |
| 39 | Automated Interpretation and Extraction of Topographic Information from Time of Flight Secondary Ion Mass Spectrometry Data. Scientific Reports, 2017, 7, 17099. | 3.3 | 21 |
| 40 | Reply to: On the ferroelectricity of CH3NH3PbI3 perovskites. Nature Materials, 2019, 18, 1051-1053. | 27.5 | 21 |
| 41 | Polarization Control via He-Ion Beam Induced Nanofabrication in Layered Ferroelectric Semiconductors. ACS Applied Materials & Interfaces, 2016, 8, 7349-7355. | 8.0 | 19 |
| 42 | Strainâ€“Chemical Gradient and Polarization in Metal Halide Perovskites. Advanced Electronic Materials, 2020, 6, 1901235. | 5.1 | 19 |
| 43 | Local crystallography analysis for atomically resolved scanning tunneling microscopy images. Nanotechnology, 2013, 24, 415707. | 2.6 | 18 |
| 44 | Multi-purposed Ar gas cluster ion beam processing for graphene engineering. Carbon, 2018, 131, 142-148. | 10.3 | 18 |
| 45 | Nanoscale Electrochemical Phenomena of Polarization Switching in Ferroelectrics. ACS Applied Materials & Interfaces, 2018, 10, 38217-38222. | 8.0 | 18 |
| 46 | Graphene milling dynamics during helium ion beam irradiation. Carbon, 2018, 138, 277-282. | 10.3 | 18 |
| 47 | Helium Ion Microscopy for Imaging and Quantifying Porosity at the Nanoscale. Analytical Chemistry, 2018, 90, 1370-1375. | 6.5 | 17 |
| 48 | Twin domains modulate light-matter interactions in metal halide perovskites. APL Materials, 2020, 8, . | 5.1 | 17 |
| 49 | Selective patterning of out-of-plane piezoelectricity in MoTe2 via focused ion beam. Nano Energy, 2021, 79, 105451. | 16.0 | 17 |
| 50 | High Resolution Multimodal Chemical Imaging Platform for Organics and Inorganics. Analytical Chemistry, 2019, 91, 12142-12148. | 6.5 | 16 |
| 51 | Deep data analytics for genetic engineering of diatoms linking genotype to phenotype via machine learning. Npj Computational Materials, 2019, 5, . | 8.7 | 16 |
| 52 | Understanding Degradation Mechanisms in SrIrO<sub>3</sub> Oxygen Evolution Electrocatalysts: Chemical and Structural Microscopy at the Nanoscale. Advanced Functional Materials, 2021, 31, 2101542. | 14.9 | 16 |
| 53 | Direct Write of 3D Nanoscale Mesh Objects with Platinum Precursor via Focused Helium Ion Beam Induced Deposition. Micromachines, 2020, 11, 527. | 2.9 | 15 |
| 54 | Spatially-Resolved Interfacial Electrochemistry: Ohmic Microscopy. Journal of Physical Chemistry C, 2008, 112, 8754-8758. | 3.1 | 14 |

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| 55 | Research Update: Spatially resolved mapping of electronic structure on atomic level by multivariate statistical analysis. APL Materials, 2014, 2, . | 5.1 | 14 |
| 56 | Biomimetic, Soft-Material Synapse for Neuromorphic Computing: from Device to Network. , 2018, , . | | 14 |
| 57 | Molecular reorganization in bulk bottlebrush polymers: direct observation via nanoscale imaging. Nanoscale, 2018, 10, 18001-18009. | 5.6 | 14 |
| 58 | Nanoweb Surfaceâ€Mounted Metalâ€“Organic Framework Films with Tunable Amounts of Acid Sites as Tailored Catalysts. Chemistry - A European Journal, 2020, 26, 691-698. | 3.3 | 11 |
| 59 | Highâ€efficiency singleâ€junction pâ€iâ€n GaAs solar cell on rollâ€toâ€roll epiâ€ready flexible metal foils for lowâ€cost photovoltaics. Progress in Photovoltaics: Research and Applications, 2020, 28, 1107-1119. | 8.1 | 10 |
| 60 | Application of pan-sharpening algorithm for correlative multimodal imaging using AFM-IR. Npj Computational Materials, 2019, 5, . | 8.7 | 9 |
| 61 | Nanoaperture fabrication in ultra-smooth single-grain gold films with helium ion beam lithography. Nanotechnology, 2020, 31, 465302. | 2.6 | 9 |
| 62 | Antisite defects in layered multiferroic CuCr<sub>0.9</sub>In<sub>0.1</sub>P<sub>2</sub>S<sub>6</sub>. Nanoscale, 2015, 7, 18579-18583. | 5.6 | 8 |
| 63 | Local coexistence of VO2 phases revealed by deep data analysis. Scientific Reports, 2016, 6, 29216. | 3.3 | 8 |
| 64 | Building with ions: towards direct write of platinum nanostructures using in situ liquid cell helium ion microscopy. Nanoscale, 2017, 9, 12949-12956. | 5.6 | 8 |
| 65 | Multimodal Chemical Imaging for Linking Adhesion with Local Chemistry in Agrochemical Multicomponent Polymeric Coatings. Analytical Chemistry, 2019, 91, 2791-2796. | 6.5 | 8 |
| 66 | Ferroic twin domains in metal halide perovskites. MRS Advances, 2019, 4, 2817-2830. | 0.9 | 7 |
| 67 | Analyzing carbon fiber structures observed by helium ion microscopy and their mechanical properties. Carbon Trends, 2021, 4, 100055. | 3.0 | 7 |
| 68 | A Soft-Matter Biomolecular Memristor Synapse for Neuromorphic Systems. , 2018, , . | | 6 |
| 69 | Nanoscale friction of CVD single-layer MoS2 with controlled defect formation. Surfaces and Interfaces, 2021, 26, 101437. | 3.0 | 5 |
| 70 | Response of a Memristive Biomembrane and Demonstration of Potential Use in Online Learning. , 2018, , . | | 4 |
| 71 | In situ multimodal imaging for nanoscale visualization of tribofilm formation. Journal of Applied Physics, 2020, 127, 154303. | 2.5 | 4 |
| 72 | Chemical Changes in Layered Ferroelectric Semiconductors Induced by Helium Ion Beam. Scientific Reports, 2017, 7, 16619. | 3.3 | 3 |

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| 73 | In situ liquid cell crystallization and imaging of thiamethoxam by helium ion microscopy. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2018, 36, . | 1.2 | 3 |
| 74 | Multi-Model Imaging of Local Chemistry and Ferroic Properties of Hybrid Organic-Inorganic Perovskites. Microscopy and Microanalysis, 2019, 25, 2076-2077. | 0.4 | 3 |
| 75 | Using Multivariate Analysis of Scanning-Rochigram Data to Reveal Material Functionality. Microscopy and Microanalysis, 2016, 22, 292-293. | 0.4 | 2 |
| 76 | Spectral Map Reconstruction Using Pan-Sharpening Algorithm: Enhancing Chemical Imaging with AFM-IR. Microscopy and Microanalysis, 2019, 25, 1024-1025. | 0.4 | 2 |
| 77 | Local Crystallography: Phases, Symmetries, and Defects from Bottom Up. Microscopy and Microanalysis, 2015, 21, 2203-2204. | 0.4 | 1 |
| 78 | 3D Nanostructures Grown via Focused Helium Ion Beam Induced Deposition. Microscopy and Microanalysis, 2018, 24, 332-333. | 0.4 | 1 |
| 79 | Surface Analysis of Polymers using Helium Ion Microscopy Coupled with Secondary Ion Mass Spectrometry (HIM-SIMS). Microscopy and Microanalysis, 2019, 25, 868-869. | 0.4 | 1 |
| 80 | Lightâ€“Ferroic Interaction: Lightâ€Ferroic Interaction in Hybrid Organicâ€“Inorganic Perovskites (Advanced Optical Materials 23/2019). Advanced Optical Materials, 2019, 7, 1970090. | 7.3 | 1 |
| 81 | Deep Data Analysis of Atomic Level Structure-Property Relationship in an Iron Superconductor Fe 105 Te 075 Se 025. Microscopy and Microanalysis, 2015, 21, 2345-2346. | 0.4 | 0 |
| 82 | STEM in 4 Dimensions: Using Multivariate Analysis of Ptychographic Data to Reveal Material Functionality. Microscopy and Microanalysis, 2015, 21, 1863-1864. | 0.4 | 0 |
| 83 | Building with Ions: Development of In-situ Liquid Cell Microscopy for the Helium Ion Microscope.. Microscopy and Microanalysis, 2016, 22, 754-755. | 0.4 | 0 |
| 84 | High Performance Computing Tools for Cross Correlation of Multi-Dimensional Data Sets Across Instrument Platforms. Microscopy and Microanalysis, 2016, 22, 288-289. | 0.4 | 0 |
| 85 | Tutorial: Processing of Atomic Resolution Images and Multispectral Data. Microscopy and Microanalysis, 2017, 23, 1394-1395. | 0.4 | 0 |
| 86 | Ion Beam Induced Current Measurements of Solar Cells with Helium Ion Microscopy. Microscopy and Microanalysis, 2017, 23, 2084-2085. | 0.4 | 0 |
| 87 | Nanofabrication Limits in Layered Ferroelectric Semiconductors via He-ion Beam. Microscopy and Microanalysis, 2017, 23, 262-263. | 0.4 | 0 |
| 88 | Rapid Screening of Nanoporous Structures in SiO2 Catalyst Particles via Helium Ion Microscopy. Microscopy and Microanalysis, 2017, 23, 264-265. | 0.4 | 0 |
| 89 | Multi-Modal Processing of Graphene Towards Precisely Controlled Fabrication of a Nanoelectronic Device Using the Helium Ion Microscope and the TOF SIMS. Microscopy and Microanalysis, 2017, 23, 1720-1721. | 0.4 | 0 |
| 90 | Liquid Cell Crystallization and In-situ Imaging of Thiamethoxam by Helium Ion Microscopy. Microscopy and Microanalysis, 2018, 24, 330-331. | 0.4 | 0 |

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| 91 | Helium Ion Microscopy Imaging of Bottlebrush Copolymers. Microscopy and Microanalysis, 2019, 25, 908-909. | 0.4 | 0 |
| 92 | Perovskites: Strainâ€“Chemical Gradient and Polarization in Metal Halide Perovskites (Adv. Electron.) Tj ETQq0 0 0 rgBT /Overlock 10 Tf | 5.1 | 0 |