# Lorin Matthews

## List of Publications by Year in descending order



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|---|---|---|---|
| 94 papers | 1,237 citations | 361045 20 h-index | 476904 29 g-index |
| 103 all docs | 103 docs citations | 103 times ranked | 546 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Crystallization Dynamics of a Single Layer Complex Plasma. Physical Review Letters, 2010, 105, 115004. | 2.9 | 103 |
| 2 | CHARGING OF AGGREGATE GRAINS IN ASTROPHYSICAL ENVIRONMENTS. Astrophysical Journal, 2013, 763, 77. | 1.6 | 54 |
| 3 | Slow Plastic Creep of 2D Dusty Plasma Solids. Physical Review Letters, 2014, 113, 025002. | 2.9 | 54 |
| 4 | CHARGING AND COAGULATION OF DUST IN PROTOPLANETARY PLASMA ENVIRONMENTS. Astrophysical Journal, 2012, 744, 8. | 1.6 | 49 |
| 5 | One-dimensional vertical dust strings in a glass box. Physical Review E, 2011, 84, 016411. | 0.8 | 38 |
| 6 | Helical structures in vertically aligned dust particle chains in a complex plasma. Physical Review E, 2013, 87, 053106. | 0.8 | 38 |
| 7 | Effects of the Charge-Dipole Interaction on the Coagulation of Fractal Aggregates. IEEE Transactions on Plasma Science, 2004, 32, 586-593. | 0.6 | 35 |
| 8 | Self-diffusion in two-dimensional quasimagnetized rotating dusty plasmas. Physical Review E, 2019, 99, 013203. | 0.8 | 31 |
| 9 | Phase transitions in a dusty plasma with two distinct particle sizes. Advances in Space Research, 2008, 41, 1510-1513. | 1.2 | 27 |
| 10 | Determination of the levitation limits of dust particles within the sheath in complex plasma experiments. Physics of Plasmas, 2012, 19, . | 0.7 | 27 |
| 11 | Fluid modeling of void closure in microgravity noble gas complex plasmas. Physical Review E, 2010, 81, 056402. | 0.8 | 25 |
| 12 | Mode coupling and resonance instabilities in quasi-two-dimensional dust clusters in complex plasmas. Physical Review E, 2014, 90, 033109. | 0.8 | 25 |
| 13 | The magnetic field inside a protoplanetary disc gap opened by planets of different masses. Monthly Notices of the Royal Astronomical Society, 2017, 472, 3277-3287. | 1.6 | 25 |
| 14 | DUST COAGULATION IN THE VICINITY OF A GAP-OPENING JUPITER-MASS PLANET. Astrophysical Journal, 2016, 823, 80. | 1.6 | 25 |
| 15 | Measurement of net electric charge and dipole moment of dust aggregates in a complex plasma. Physical Review E, 2014, 90, 033101. | 0.8 | 24 |
| 16 | Electrical conductivity of the thermal dusty plasma under the conditions of a hybrid plasma environment simulation facility. New Journal of Physics, 2015, 17, 053041. | 1.2 | 23 |
| 17 | Dust charging in dynamic ion wakes. Physics of Plasmas, 2020, 27, . | 0.7 | 23 |
| 18 | Dust particle charge in plasma with ion flow and electron depletion near plasma boundaries. Physics of Plasmas, 2011, 18, . | 0.7 | 22 |

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|---|---|---|---|
| 19 | Mode couplings and resonance instabilities in dust clusters. Physical Review E, 2013, 88, 043103. | 0.8 | 22 |
| 20 | Dust as probe for horizontal field distribution in low pressure gas discharges. Plasma Sources Science and Technology, 2014, 23, 045008. | 1.3 | 22 |
| 21 | Gravitoelectrodynamics in SaturnÂs F ring: encounters with Prometheus and Pandora. Journal of Physics A, 2003, 36, 6207-6214. | 1.6 | 21 |
| 22 | Digital imaging and analysis of dusty plasmas. Advances in Space Research, 2004, 34, 2374-2378. | 1.2 | 20 |
| 23 | COSMIC DUST AGGREGATION WITH STOCHASTIC CHARGING. Astrophysical Journal, 2013, 776, 103. | 1.6 | 20 |
| 24 | Dusty plasma correlation function experiment. Advances in Space Research, 2004, 34, 2379-2383. | 1.2 | 17 |
| 25 | Ion-wake field inside a glass box. Physical Review E, 2016, 94, 033201. | 0.8 | 17 |
| 26 | Ionization waves in the PK-4 direct current neon discharge. Plasma Sources Science and Technology, 2020, 29, 115014. | 1.3 | 17 |
| 27 | Formation of Cosmic Dust Bunnies. IEEE Transactions on Plasma Science, 2007, 35, 260-265. | 0.6 | 16 |
| 28 | Effect of dipoleâ€“dipole charge interactions on dust coagulation. New Journal of Physics, 2009, 11, 063030. | 1.2 | 16 |
| 29 | Simple method to measure the interaction potential of dielectric grains in a dusty plasma. Physical Review E, 2010, 82, 036401. | 0.8 | 16 |
| 30 | Dust as probes: Determining confinement and interaction forces. Physical Review E, 2020, 102, 043210. | 0.8 | 16 |
| 31 | Experimental and computational characterization of a modified GEC cell for dusty plasma experiments. New Journal of Physics, 2009, 11, 063024. | 1.2 | 14 |
| 32 | Photophoresis on polydisperse basalt microparticles under microgravity. Journal of Aerosol Science, 2014, 76, 126-137. | 1.8 | 14 |
| 33 | Anomalous diffusion in one-dimensional disordered systems: a discrete fractional Laplacian method. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 135205. | 0.7 | 14 |
| 34 | Dipoleâ€“Dipole Interactions of Charged-Magnetic Grains. IEEE Transactions on Plasma Science, 2010, 38, 792-797. | 0.6 | 13 |
| 35 | Vibrational Modes and Instabilities of a Dust-Particle Pair in a Complex Plasma. IEEE Transactions on Plasma Science, 2010, 38, 826-832. | 0.6 | 13 |
| 36 | Interaction force in a vertical dust chain inside a glass box. Physical Review E, 2014, 90, 013107. | 0.8 | 13 |

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|---|---|---|---|
| 37 | Dynamics of a dust crystal with two different size dust species. Advances in Space Research, 2006, 38, 2564-2570. | 1.2 | 12 |
| 38 | Charging and Growth of Fractal Dust Grains. IEEE Transactions on Plasma Science, 2008, 36, 310-314. | 0.6 | 12 |
| 39 | Mode Couplings and Conversions for Horizontal Dust Particle Pairs in Complex Plasmas. IEEE Transactions on Plasma Science, 2013, 41, 745-753. | 0.6 | 12 |
| 40 | Dusty plasma cavities: Probe-induced and natural. Physical Review E, 2015, 91, 063105. | 0.8 | 12 |
| 41 | Temperature measurement of a dust particle in a RF plasma GEC reference cell. Journal of Plasma Physics, 2016, 82, . | 0.7 | 11 |
| 42 | Transport properties of disordered twoâ€dimensional complex plasma crystal. Contributions To Plasma Physics, 2018, 58, 209-216. | 0.5 | 11 |
| 43 | The initial structure of chondrule dust rims I: Electrically neutral grains. Icarus, 2019, 321, 99-111. | 1.1 | 11 |
| 44 | Charged grains in Saturnâ€™s F-Ring: interaction with Saturnâ€™s magnetic field. Advances in Space Research, 2004, 33, 2292-2297. | 1.2 | 9 |
| 45 | Probing the Sheath Electric Field With a Crystal Lattice by Using Thermophoresis in Dusty Plasma. IEEE Transactions on Plasma Science, 2010, 38, 768-773. | 0.6 | 9 |
| 46 | Two-dimensional and three-dimensional Coulomb clusters in parabolic traps. Physics of Plasmas, 2014, 21, . | 0.7 | 9 |
| 47 | Mode couplings and resonance instabilities in finite dust chains. Physical Review E, 2015, 91, 053101. | 0.8 | 9 |
| 48 | Photophoretic force on aggregate grains. Monthly Notices of the Royal Astronomical Society, 2016, 455, 2582-2591. | 1.6 | 9 |
| 49 | The influence of monomer shape on aggregate morphologies. Astronomy and Astrophysics, 2012, 539, A99. | 2.1 | 9 |
| 50 | Effect of ionization waves on dust chain formation in a DC discharge. Journal of Plasma Physics, 2021, 87, . | 0.7 | 9 |
| 51 | Analysis of magnetic field plasma interactions using microparticles as probes. Physical Review E, 2015, 92, 023107. | 0.8 | 8 |
| 52 | Physical interpretation of the spectral approach to delocalization in infinite disordered systems. Materials Research Express, 2016, 3, 125904. | 0.8 | 8 |
| 53 | Influence of temporal variations in plasma conditions on the electric potential near self-organized dust chains. Physics of Plasmas, 2022, 29, . | 0.7 | 8 |
| 54 | Effect of multi-sized dust distribution on local plasma sheath potentials. Advances in Space Research, 2006, 38, 2575-2580. | 1.2 | 7 |

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|---|---|---|---|
| 55 | Using dust as probes to determine sheath extent and structure. Journal of Plasma Physics, 2016, 82, . | 0.7 | 7 |
| 56 | Multipole Expansions of Aggregate Charge: How Far to Go?. IEEE Transactions on Plasma Science, 2016, 44, 519-524. | 0.6 | 7 |
| 57 | Discrete stochastic charging of aggregate grains. Physical Review E, 2018, 97, 053207. | 0.8 | 6 |
| 58 | Nonlinear mode coupling and internal resonance observed in a dusty plasma. New Journal of Physics, 2019, 21, 103051. | 1.2 | 6 |
| 59 | Nonlinear response of vertical paired structure in complex plasma. Plasma Physics and Controlled Fusion, 2019, 61, 055004. | 0.9 | 6 |
| 60 | A machine learning based Bayesian optimization solution to non-linear responses in dusty plasmas. Machine Learning: Science and Technology, 2021, 2, 035017. | 2.4 | 6 |
| 61 | Numerical study of anomalous diffusion of light in semicrystalline polymer structures. Physical Review Research, 2020, 2, . | 1.3 | 6 |
| 62 | Modeling Agglomeration of Dust Particles in Plasma. AIP Conference Proceedings, 2011, , . | 0.3 | 5 |
| 63 | Delocalization in infinite disordered two-dimensional lattices of different geometry. Physical Review B, 2017, 96, . | 1.1 | 5 |
| 64 | Detailed Model of the Growth of Fluffy Dust Aggregates in a Protoplanetary Disk: Effects of Nebular Conditions. Astrophysical Journal, 2020, 897, 182. | 1.6 | 5 |
| 65 | The initial structure of chondrule dust rims II: Charged grains. Icarus, 2021, 354, 114053. | 1.1 | 5 |
| 66 | Glow and Dust in Plasma Boundaries. IEEE Transactions on Plasma Science, 2013, 41, 799-803. | 0.6 | 4 |
| 67 | Vertical-probe-induced asymmetric dust oscillation in complex plasma. Physical Review E, 2013, 87, 053109. | 0.8 | 4 |
| 68 | Mapping the Plasma Potential in a Glass Box. IEEE Transactions on Plasma Science, 2019, 47, 3079-3086. | 0.6 | 4 |
| 69 | Spectral approach to transport in a two-dimensional honeycomb lattice with substitutional disorder. Physical Review B, 2019, 99, . | 1.1 | 4 |
| 70 | Fractional Laplacian spectral approach to turbulence in a dusty plasma monolayer. Physics of Plasmas, 2021, 28, . | 0.7 | 4 |
| 71 | The effect of dust charge variation, due to ion flow and electron depletion, on dust levitation. AIP Conference Proceedings, 2011, , . | 0.3 | 3 |
| 72 | Vertical Interaction Between Dust Particles Confined in a Glass Box in a Complex Plasma. IEEE Transactions on Plasma Science, 2013, 41, 794-798. | 0.6 | 3 |

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|---|---|---|---|
| 73 | Guest Editorial Special Issue on Dusty Plasmas. IEEE Transactions on Plasma Science, 2013, 41, 733-734. | 0.6 | 3 |
| 74 | Effects of monomer shape on the formation of aggregates from a power law monomer distribution. New Journal of Physics, 2013, 15, 073026. | 1.2 | 3 |
| 75 | Particle Growth in an Experimental Dusty Plasma System. Chinese Physics Letters, 2018, 35, 125201. | 1.3 | 3 |
| 76 | Charging of fractal dust agglomerates in a plasma environment. , 2007, , . | | 2 |
| 77 | Agglomeration of Dust Particles in the Lab. AIP Conference Proceedings, 2011, , . | 0.3 | 2 |
| 78 | Mapping of force fields in a capacitively driven radiofrequency plasma discharge. Journal of Plasma Physics, 2016, 82, . | 0.7 | 2 |
| 79 | Comparison of Plasma Magnetic Field Interactions in a Static and Dynamic Plasma Facility. Transactions of the Japan Society for Aeronautical and Space Sciences Aerospace Technology Japan, 2016, 14, Pe_21-Pe_26. | 0.1 | 2 |
| 80 | Dust Particle Pair Correlation Functions and the Nonlinear Effect of Interaction Potentials. IEEE Transactions on Plasma Science, 2019, 47, 3057-3062. | 0.6 | 2 |
| 81 | A model of coagulation in dust clouds during grain charging. Advances in Space Research, 2004, 34, 2384-2389. | 1.2 | 1 |
| 82 | The effect of electrode heating on the discharge parameters in complex plasma experiments. Plasma Sources Science and Technology, 2011, 20, 015026. | 1.3 | 1 |
| 83 | Simple experiment on the sputtering rate of solids in gas discharges. Physics of Plasmas, 2017, 24, . | 0.7 | 1 |
| 84 | Torsion Excitation in Dusty Plasma Crystals. , 2022, , . | | 1 |
| 85 | Numerical Simulation of Gravitoelectrodynamics in Dusty Plasmas. , 2002, , 199-202. | | 0 |
| 86 | Charging of Fractal Dust Agglomerates in a Plasma Environment. , 2007, , . | | 0 |
| 87 | Investigation of dust wake field oscillations. , 2007, , . | | 0 |
| 88 | Diffusion in single layer quasi-magnetized strongly coupled dusty plasmas. , 2016, , . | | 0 |
| 89 | Using Dust Grains to Measure Plasma Conditions with a Changing Number Density. , 2021, , . | | 0 |
| 90 | Examining Ionization Wave Effects on Self-Organization of Dust Chains*. , 2021, , . | | 0 |

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|---|---|---|---|
| 91 | Dust in Protoplanetary Environments. , 2021, , . | | 0 |
| 92 | Determining Forces On Dust Grains In A Plasma With A Position-Dependent Number Density. , 2022, , . | | 0 |
| 93 | Torsion density related to electrode and crystal size. , 2022, , . | | 0 |
| 94 | An Experimental Investigation of Charging Methods on the Lunar Surface. , 2022, , . | | 0 |