# Binquan Luan

List of Publications by Year
in descending order



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|---|---|---|---|
| 85 papers | 4,062 citations | 126858<br>33 h-index | 123376<br>61 g-index |
| 95 all docs | 95 docs citations | 95 times ranked | 5699 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | The breakdown of continuum models for mechanical contacts. Nature, 2005, 435, 929-932. | 13.7 | 587 |
| 2 | Enhanced binding of the N501Yâ€mutated SARSâ€CoVâ€2 spike protein to the human ACE2 receptor: insights from molecular dynamics simulations. FEBS Letters, 2021, 595, 1454-1461. | 1.3 | 165 |
| 3 | Potential Toxicity of Graphene to Cell Functions <i>via</i> Disrupting Proteinâ€“Protein Interactions. ACS Nano, 2015, 9, 663-669. | 7.3 | 164 |
| 4 | PEGylated graphene oxide elicits strong immunological responses despite surface passivation. Nature Communications, 2017, 8, 14537. | 5.8 | 157 |
| 5 | Electro-osmotic screening of the DNA charge in a nanopore. Physical Review E, 2008, 78, 021912. | 0.8 | 142 |
| 6 | Opening Lids: Modulation of Lipase Immobilization by Graphene Oxides. ACS Catalysis, 2016, 6, 4760-4768. | 5.5 | 139 |
| 7 | Contact of single asperities with varying adhesion: Comparing continuum mechanics to atomistic simulations. Physical Review E, 2006, 74, 026111. | 0.8 | 131 |
| 8 | <i>In Silico</i> Exploration of the Molecular Mechanism of Clinically Oriented Drugs for Possibly Inhibiting SARS-CoV-2â€™s Main Protease. Journal of Physical Chemistry Letters, 2020, 11, 4413-4420. | 2.1 | 118 |
| 9 | Wettability and friction of water on a MoS2 nanosheet. Applied Physics Letters, 2016, 108, . | 1.5 | 113 |
| 10 | Slowing and controlling the translocation of DNA in a solid-state nanopore. Nanoscale, 2012, 4, 1068-1077. | 2.8 | 111 |
| 11 | Base-By-Base Ratcheting of Single Stranded DNA through a Solid-State Nanopore. Physical Review Letters, 2010, 104, 238103. | 2.9 | 106 |
| 12 | Graphene-Induced Pore Formation on Cell Membranes. Scientific Reports, 2017, 7, 42767. | 1.6 | 103 |
| 13 | DNA Attraction in Monovalent and Divalent Electrolytes. Journal of the American Chemical Society, 2008, 130, 15754-15755. | 6.6 | 95 |
| 14 | Complete wetting of graphene by biological lipids. Nanoscale, 2016, 8, 5750-5754. | 2.8 | 83 |
| 15 | End-to-end attraction of duplex DNA. Nucleic Acids Research, 2012, 40, 3812-3821. | 6.5 | 81 |
| 16 | Electric and electrophoretic inversion of the DNA charge in multivalent electrolytes. Soft Matter, 2010, 6, 243-246. | 1.2 | 78 |
| 17 | Targeting Proteases for Treating COVID-19. Journal of Proteome Research, 2020, 19, 4316-4326. | 1.8 | 68 |
| 18 | Revealing the importance of surface morphology of nanomaterials to biological responses: Adsorption of the villin headpiece onto graphene and phosphorene. Carbon, 2015, 94, 895-902. | 5.4 | 65 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | High-Curvature Nanostructuring Enhances Probe Display for Biomolecular Detection. Nano Letters, 2017, 17, 1289-1295. | 4.5 | 64 |
| 20 | Fabrication of sub-20 nm nanopore arrays in membranes with embedded metal electrodes at wafer scales. Nanoscale, 2014, 6, 8900-8906. | 2.8 | 57 |
| 21 | Spontaneous Transport of Single-Stranded DNA through Grapheneâ€“MoS<sub>2</sub> Heterostructure Nanopores. ACS Nano, 2018, 12, 3886-3891. | 7.3 | 57 |
| 22 | Hybrid Atomistic/Continuum Study of Contact and Friction Between Rough Solids. Tribology Letters, 2009, 36, 1-16. | 1.2 | 55 |
| 23 | DNA translocation through single-layer boron nitride nanopores. Soft Matter, 2016, 12, 817-823. | 1.2 | 49 |
| 24 | Insights into SARS-CoV-2â€™s Mutations for Evading Human Antibodies: Sacrifice and Survival. Journal of Medicinal Chemistry, 2022, 65, 2820-2826. | 2.9 | 49 |
| 25 | Control and reversal of the electrophoretic force on DNA in a charged nanopore. Journal of Physics Condensed Matter, 2010, 22, 454123. | 0.7 | 46 |
| 26 | Single-File Protein Translocations through Grapheneâ€“MoS<sub>2</sub> Heterostructure Nanopores. Journal of Physical Chemistry Letters, 2018, 9, 3409-3415. | 2.1 | 45 |
| 27 | Emerging Î²-Sheet Rich Conformations in Supercompact Huntingtin Exon-1 Mutant Structures. Journal of the American Chemical Society, 2017, 139, 8820-8827. | 6.6 | 43 |
| 28 | Strain Softening in Stretched DNA. Physical Review Letters, 2008, 101, 118101. | 2.9 | 42 |
| 29 | Simplified TiO2 force fields for studies of its interaction with biomolecules. Journal of Chemical Physics, 2015, 142, 234102. | 1.2 | 41 |
| 30 | In meso crystal structure and docking simulations suggest an alternative proteoglycan binding site in the OpcA outer membrane adhesin. Proteins: Structure, Function and Bioinformatics, 2008, 71, 24-34. | 1.5 | 40 |
| 31 | Regulating the Transport of DNA through Biofriendly Nanochannels in a Thin Solid Membrane. Scientific Reports, 2014, 4, 3985. | 1.6 | 40 |
| 32 | Characterizing and Controlling the Motion of ssDNA in a Solid-State Nanopore. Biophysical Journal, 2011, 101, 2214-2222. | 0.2 | 37 |
| 33 | Spontaneous ssDNA stretching on graphene and hexagonal boron nitride in plane heterostructures. Nature Communications, 2019, 10, 4610. | 5.8 | 36 |
| 34 | Structure-based lead optimization of herbal medicine rutin for inhibiting SARS-CoV-2's main protease. Physical Chemistry Chemical Physics, 2020, 22, 25335-25343. | 1.3 | 34 |
| 35 | Dynamics of DNA translocation in a solid-state nanopore immersed in aqueous glycerol. Nanotechnology, 2012, 23, 455102. | 1.3 | 33 |
| 36 | Effect of Inertia and Elasticity on Stick-Slip Motion. Physical Review Letters, 2004, 93, 036105. | 2.9 | 32 |

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|---|---|---|---|
| 37 | Membrane Insertion and Phospholipids Extraction by Graphyne Nanosheets. Journal of Physical Chemistry C, 2017, 121, 2444-2450. | 1.5 | 31 |
| 38 | Combined Computationalâ€“Experimental Approach to Explore the Molecular Mechanism of SaCas9 with a Broadened DNA Targeting Range. Journal of the American Chemical Society, 2019, 141, 6545-6552. | 6.6 | 31 |
| 39 | Atomic-Scale Fluidic Diodes Based on Triangular Nanopores in Bilayer Hexagonal Boron Nitride. Nano Letters, 2019, 19, 977-982. | 4.5 | 31 |
| 40 | Nanomechanics of Protein Unfolding Outside a Generic Nanopore. ACS Nano, 2016, 10, 317-323. | 7.3 | 27 |
| 41 | Humidityâ€Responsive Singleâ€Nanoparticleâ€Layer Plasmonic Films. Advanced Materials, 2017, 29, 1606796. | 11.1 | 25 |
| 42 | Detecting Interactions between Nanomaterials and Cell Membranes by Synthetic Nanopores. ACS Nano, 2017, 11, 12615-12623. | 7.3 | 25 |
| 43 | Tribological Effects on DNA Translocation in a Nanochannel Coated with a Self-Assembled Monolayer. Journal of Physical Chemistry B, 2010, 114, 17172-17176. | 1.2 | 24 |
| 44 | Potential disruption of protein-protein interactions by graphene oxide. Journal of Chemical Physics, 2016, 144, 225102. | 1.2 | 24 |
| 45 | Single Locked Nucleic Acid-Enhanced Nanopore Genetic Discrimination of Pathogenic Serotypes and Cancer Driver Mutations. ACS Nano, 2018, 12, 4194-4205. | 7.3 | 24 |
| 46 | An electro-hydrodynamics-based model for the ionic conductivity of solid-state nanopores during DNA translocation. Nanotechnology, 2013, 24, 195702. | 1.3 | 23 |
| 47 | Crown Nanopores in Graphene for CO<sub>2</sub> Capture and Filtration. ACS Nano, 2022, 16, 6274-6281. | 7.3 | 23 |
| 48 | Electrochemical protection of thin film electrodes in solid state nanopores. Nanotechnology, 2011, 22, 275304. | 1.3 | 22 |
| 49 | <i>In Silico</i> Antibody Mutagenesis for Optimizing Its Binding to Spike Protein of Severe Acute Respiratory Syndrome Coronavirus 2. Journal of Physical Chemistry Letters, 2020, 11, 9781-9787. | 2.1 | 22 |
| 50 | Understanding interactions between biomolecules and two-dimensional nanomaterials using in silico microscopes. Advanced Drug Delivery Reviews, 2022, 186, 114336. | 6.6 | 22 |
| 51 | Electrochemical Characterization of Thin Film Electrodes Toward Developing a DNA Transistor. Langmuir, 2010, 26, 19191-19198. | 1.6 | 21 |
| 52 | Structureâ€“Function Analysis of Resistance to Bamlanivimab by SARS-CoV-2 Variants Kappa, Delta, and Lambda. Journal of Chemical Information and Modeling, 2021, 61, 5133-5140. | 2.5 | 21 |
| 53 | Mechanism of Divalent-Ion-Induced Charge Inversion of Bacterial Membranes. Journal of Physical Chemistry Letters, 2016, 7, 2434-2438. | 2.1 | 20 |
| 54 | Electrophoretic Transport of Single-Stranded DNA through a Two Dimensional Nanopore Patterned on an In-Plane Heterostructure. ACS Nano, 2020, 14, 13137-13145. | 7.3 | 19 |

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|---|---|---|---|
| 55 | Potential Interference of Proteinâ€“Protein Interactions by Graphyne. Journal of Physical Chemistry B, 2016, 120, 2124-2131. | 1.2 | 18 |
| 56 | A novel self-activation mechanism of Candida antarctica lipase B. Physical Chemistry Chemical Physics, 2017, 19, 15709-15714. | 1.3 | 18 |
| 57 | Nanopore-Based Sensors for Detecting Toxicity of a Carbon Nanotube to Proteins. Journal of Physical Chemistry Letters, 2012, 3, 2337-2341. | 2.1 | 17 |
| 58 | Sequential protein unfolding through a carbon nanotube pore. Nanoscale, 2016, 8, 12143-12151. | 2.8 | 17 |
| 59 | Understanding the graphene quantum dots-ubiquitin interaction by identifying the interaction sites. Carbon, 2017, 121, 285-291. | 5.4 | 17 |
| 60 | The effect of calcium on the conformation of cobalamin transporter BtuB. Proteins: Structure, Function and Bioinformatics, 2010, 78, 1153-1162. | 1.5 | 16 |
| 61 | Structure Refinement of the OpcA Adhesin Using Molecular Dynamics. Biophysical Journal, 2007, 93, 3058-3069. | 0.2 | 15 |
| 62 | In silico Exploration of Inhibitors for SARS-CoV-2's Papain-Like Protease. Frontiers in Chemistry, 2020, 8, 624163. | 1.8 | 15 |
| 63 | Stable Cell Clones Harboring Self-Replicating SARS-CoV-2 RNAs for Drug Screen. Journal of Virology, 2022, 96, jvi0221621. | 1.5 | 14 |
| 64 | Nanopores in Atomically Thin 2D Nanosheets Limit Aqueous Single-Stranded DNA Transport. Physical Review Letters, 2021, 127, 138103. | 2.9 | 13 |
| 65 | Structural perturbations on huntingtin N17 domain during its folding on 2D-nanomaterials. Nanotechnology, 2017, 28, 354001. | 1.3 | 12 |
| 66 | Controlled transport of DNA through a Y-shaped carbon nanotube in a solid membrane. Nanoscale, 2014, 6, 11479-11483. | 2.8 | 11 |
| 67 | Molecular Mechanism of Stabilizing the Helical Structure of Huntingtin N17 in a Micellar Environment. Journal of Physical Chemistry B, 2017, 121, 4713-4721. | 1.2 | 11 |
| 68 | Parameterization of Molybdenum Disulfide Interacting with Water Using the Free Energy Perturbation Method. Journal of Physical Chemistry B, 2019, 123, 7243-7252. | 1.2 | 11 |
| 69 | Role of intercalation in the electrical properties of nucleic acids for use in molecular electronics. Nanoscale Horizons, 2021, 6, 651-660. | 4.1 | 10 |
| 70 | Glassy dynamics in mutant huntingtin proteins. Journal of Chemical Physics, 2018, 149, 072333. | 1.2 | 9 |
| 71 | Potential interference with microtubule assembly by graphene: a tug-of-war. Nanoscale, 2020, 12, 4968-4974. | 2.8 | 7 |
| 72 | Nanopore-Based Sensors for Ligandâ€“Receptor Lead Optimization. Journal of Physical Chemistry Letters, 2015, 6, 331-337. | 2.1 | 5 |

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|---|---|---|---|
| 73 | Friction and Plasticity in Contacts Between Amorphous Solids. Tribology Letters, 2021, 69, 1. | 1.2 | 5 |
| 74 | <scp>Crystalâ€structuresâ€guided</scp> design of <scp>fragmentâ€based</scp> drugs for inhibiting the main protease of <scp>SARSâ€CoV</scp>â€2. Proteins: Structure, Function and Bioinformatics, 2022, 90, 1081-1089. | 1.5 | 5 |
| 75 | Controlling the motion of DNA in a nanochannel with transversal alternating electric voltages. Nanotechnology, 2014, 25, 265101. | 1.3 | 4 |
| 76 | Exploring the binding mechanism between human profilin (PFN1) and polyproline-10 through binding mode screening. Journal of Chemical Physics, 2019, 150, 015102. | 1.2 | 4 |
| 77 | Multiscale Modeling of Two Dimensional Rough Surface Contacts. Materials Research Society Symposia Proceedings, 2004, 841, R7.4.1. | 0.1 | 3 |
| 78 | Fabricatable nanopore sensors with an atomic thickness. Applied Physics Letters, 2013, 103, . | 1.5 | 3 |
| 79 | Bioâ€nano interactions detected by nanochannel electrophoresis. Electrophoresis, 2016, 37, 2190-2195. | 1.3 | 3 |
| 80 | Radial dependence of DNA translocation velocity in a solid-state nanopore. Mikrochimica Acta, 2016, 183, 995-1002. | 2.5 | 3 |
| 81 | Field-Dependent Dehydration and Optimal Ionic Escape Paths for C<sub>2</sub>N Membranes. Journal of Physical Chemistry B, 2021, 125, 7044-7059. | 1.2 | 3 |
| 82 | Energetically stretching proteins on patterned two dimensional nanosheets. Nano Futures, 2020, 4, 035001. | 1.0 | 3 |
| 83 | Nanopore-Based DNA Sequencing and DNA Motion Control. , 2011, , 255-286. | | 2 |
| 84 | Effect of Valence and Concentration of Counterions on Electrophoretic Mobility of DNA in a Solid-State Nanopore. Biophysical Journal, 2009, 96, 648a. | 0.2 | 1 |
| 85 | Side-by-side And End-to-end Attraction Of Double-stranded DNA. Biophysical Journal, 2009, 96, 578a. | 0.2 | 0 |