

# Turab Lookman

## List of Publications by Year in descending order

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140  
papers

6,792  
citations

76326

40  
h-index

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78  
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141  
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141  
docs citations

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times ranked

5547  
citing authors

| #  | ARTICLE   | IF   | CITATIONS |
|----|---|------|-----------|
| 1  | Temperature-field history dependence of the elastocaloric effect for a strain glass alloy. Journal of Materials Science and Technology, 2022, 103, 8-14.                                  | 10.7 | 7         |
| 2  | Automated pipeline for superalloy data by text mining. Npj Computational Materials, 2022, 8, .  | 8.7  | 25        |
| 3  | Effects of thermal and electrical hysteresis on phase transitions and electrocaloric effect in ferroelectrics: A computational study. Acta Materialia, 2022, 228, 117784.                 | 7.9  | 0         |
| 4  | Low-fatigue and large room-temperature elastocaloric effect in a bulk TiNiCu <sub>49.2</sub> alloy. Journal of Materials Science and Technology, 2022, 122, 77-83.                        | 7.9  | 17        |
| 5  | Accelerated discovery of high-performance piezocatalyst in BaTiO <sub>3</sub> -based ceramics via machine learning. Nano Energy, 2022, 97, 107218.  | 16.0 | 23        |
| 6  | Machine learning combined with feature engineering to search for BaTiO <sub>3</sub> based ceramics with large piezoelectric constant. Journal of Alloys and Compounds, 2022, 908, 164468. | 5.5  | 14        |
| 7  | Symbolic regression in materials science via dimension-synchronous-computation. Journal of Materials Science and Technology, 2022, 122, 77-83.  | 10.7 | 12        |
| 8  | Molecular dynamics simulations of ultralow hysteretic behavior in super-elastic shape memory alloys. Acta Materialia, 2022, 232, 117973.  | 7.9  | 4         |
| 9  | Electric hysteresis and validity of indirect electrocaloric characterization in antiferroelectric ceramics. Scripta Materialia, 2022, 216, 114763.  | 5.2  | 5         |
| 10 | Evolution analysis of $\hat{\Gamma}^3$ precipitate coarsening in Co-based superalloys using kinetic theory and machine learning. Acta Materialia, 2022, 235, 118101.                      | 7.9  | 17        |
| 11 | Determining Multi-Component Phase Diagrams with Desired Characteristics Using Active Learning. Advanced Science, 2021, 8, 2003165.  | 11.2 | 23        |
| 12 | Efficient sampling for decision making in materials discovery*. Chinese Physics B, 2021, 30, 050705.  | 1.4  | 4         |
| 13 | Enhanced Energy-Storage Density by Reversible Domain Switching in Acceptor-Doped Ferroelectrics. Physical Review Applied, 2021, 15, .   | 3.8  | 6         |
| 14 | Alkali-deficiency driven charged out-of-phase boundaries for giant electromechanical response. Nature Communications, 2021, 12, 2841.   | 12.8 | 19        |
| 15 | Anomalous dislocation core structure in shock compressed bcc high-entropy alloys. Acta Materialia, 2021, 209, 116801.   | 7.9  | 42        |
| 16 | Modeling solid solution strengthening in high entropy alloys using machine learning. Acta Materialia, 2021, 212, 116917.  | 7.9  | 87        |
| 17 | Learning from superelasticity data to search for Ti-Ni alloys with large elastocaloric effect. Acta Materialia, 2021, 218, 117200.  | 7.9  | 20        |
| 18 | Efficient estimation of material property curves and surfaces via active learning. Physical Review Materials, 2021, 5, .  | 2.4  | 17        |

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|----|--|------|-----------|
| 19 | Machine-Learning-Enabled Prediction of Adiabatic Temperature Change in Lead-Free BaTiO <sub>3</sub> -Based Electrocaloric Ceramics. ACS Applied Materials & Interfaces, 2021, 13, 53475-53484.                   | 8.0  | 5         |
| 20 | Phase prediction in high entropy alloys with a rational selection of materials descriptors and machine learning models. Acta Materialia, 2020, 185, 528-539.   | 7.9  | 206       |
| 21 | Knowledge-Based Descriptor for the Compositional Dependence of the Phase Transition in BaTiO <sub>3</sub> -Based Ferroelectrics. ACS Applied Materials & Interfaces, 2020, 12, 44970-44980.                      | 8.0  | 7         |
| 22 | Bayesian Global Optimization applied to the design of shape-memory alloys. , 2020, , 519-537.  |      | 3         |
| 23 | Data-Based Methods for Materials Design and Discovery: Basic Ideas and General Methods. Synthesis Lectures on Materials and Optics, 2020, 1, 1-188.  | 0.2  | 6         |
| 24 | Role of uncertainty estimation in accelerating materials development via active learning. Journal of Applied Physics, 2020, 128, .   | 2.5  | 24        |
| 25 | Machine learning assisted multi-objective optimization for materials processing parameters: A case study in Mg alloy. Journal of Alloys and Compounds, 2020, 844, 156159.  | 5.5  | 41        |
| 26 | Enhanced magnetocaloric performance in manganite bilayers. Journal of Applied Physics, 2020, 127, .  | 2.5  | 7         |
| 27 | Accelerated Search for BaTiO <sub>3</sub> -Based Ceramics with Large Energy Storage at Low Fields Using Machine Learning and Experimental Design. Advanced Science, 2019, 6, 1901395.                            | 11.2 | 44        |
| 28 | Machine-Learning-Based Predictive Modeling of Glass Transition Temperatures: A Case of Polyhydroxyalkanoate Homopolymers and Copolymers. Journal of Chemical Information and Modeling, 2019, 59, 5013-5025.      | 5.4  | 85        |
| 29 | Doping effects of point defects in shape memory alloys. Acta Materialia, 2019, 176, 177-188.   | 7.9  | 13        |
| 30 | Machine learning assisted design of high entropy alloys with desired property. Acta Materialia, 2019, 170, 109-117.  | 7.9  | 445       |
| 31 | Effects of Long- and Short-Range Ferroelectric Order on the Electrocaloric Effect in Relaxor Ferroelectric Ceramics. Physical Review Applied, 2019, 11, .  | 3.8  | 57        |
| 32 | Active learning in materials science with emphasis on adaptive sampling using uncertainties for targeted design. Npj Computational Materials, 2019, 5, .   | 8.7  | 315       |
| 33 | The Search for BaTiO <sub>3</sub> -Based Piezoelectrics With Large Piezoelectric Coefficient Using Machine Learning. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2019, 66, 394-401. | 3.0  | 23        |
| 34 | Critical diffusivity in the reversibility-irreversibility transition of amorphous solids under oscillatory shear. Journal of Physics Condensed Matter, 2019, 31, 045101.   | 1.8  | 10        |
| 35 | hcp $\beta'$ phase transition mechanisms in shocked zirconium: A machine learning based atomic simulation study. Acta Materialia, 2019, 162, 126-135.  | 7.9  | 17        |
| 36 | Multi-objective Optimization for Materials Discovery via Adaptive Design. Scientific Reports, 2018, 8, 3738.   | 3.3  | 94        |

| #  | ARTICLE  | IF   | CITATIONS |
|----|--|------|-----------|
| 37 | First-principles study of the $\pm$ - $\bar{1}00$ phase transformation in Ti and Zr coupled to slip modes. Journal of Applied Physics, 2018, 123, 045903.  | 2.5  | 6         |
| 38 | Influence of Finite Size on the Electrocaloric Response in $\text{PbTiO}_3$ Ceramics Near Room Temperature Using Landau Theory. Physica Status Solidi (B): Basic Research, 2018, 255, 1700469.   | 1.5  | 5         |
| 39 | Accelerated Discovery of Large Electrostrains in $\text{BaTiO}_3$ -Based Piezoelectrics Using Active Learning. Advanced Materials, 2018, 30, 1702884.  | 21.0 | 254       |
| 40 | Experimental search for high-temperature ferroelectric perovskites guided by two-step machine learning. Nature Communications, 2018, 9, 1668.  | 12.8 | 189       |
| 41 | Origin of large electrostrain in $\text{Sn}^{4+}$ doped $\text{Ba}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_{3-x}(\text{Ba}_{0.7}\text{Ca}_{0.3})\text{TiO}_3$ ceramics. Acta Materialia, 2018, 157, 155-164.                           | 7.9  | 22        |
| 42 | Predictions of new $\langle \text{AB} \rangle_3 \text{O}$ perovskite compounds by combining machine learning and density functional theory. Physical Review Materials, 2018, 2, .  | 2.4  | 127       |
| 43 | An informatics approach to transformation temperatures of NiTi-based shape memory alloys. Acta Materialia, 2017, 125, 532-541.   | 7.9  | 168       |
| 44 | Optimal experimental design for materials discovery. Computational Materials Science, 2017, 129, 311-322.  | 3.0  | 54        |
| 45 | Learning from data to design functional materials without inversion symmetry. Nature Communications, 2017, 8, 14282.   | 12.8 | 76        |
| 46 | Role of cadmium on the phase transitions and electrical properties of $\text{BaTiO}_3$ ceramics. Ceramics International, 2017, 43, 1114-1120.  | 4.8  | 5         |
| 47 | Ferroc glasses. Npj Computational Materials, 2017, 3, .  | 8.7  | 27        |
| 48 | Enhanced Energy Storage with Polar Vortices in Ferroelectric Nanocomposites. Physical Review Applied, 2017, 8, .   | 3.8  | 20        |
| 49 | Material descriptors for morphotropic phase boundary curvature in lead-free piezoelectrics. Applied Physics Letters, 2017, 111, 032907.  | 3.3  | 14        |
| 50 | Ferroelectric, elastic, piezoelectric, and dielectric properties of $\text{Ba}(\text{Ti}_{0.7}\text{Zr}_{0.3})\text{O}_{3-x}(\text{Ba}_{0.82}\text{Ca}_{0.18})\text{TiO}_3$ Pb-free ceramics. Journal of Applied Physics, 2017, 122, . | 2.5  | 16        |
| 51 | The Irreversibility Transition in Amorphous Solids Under Periodic Shear. Understanding Complex Systems, 2017, , 227-259.   | 0.6  | 3         |
| 52 | Statistical inference and adaptive design for materials discovery. Current Opinion in Solid State and Materials Science, 2017, 21, 121-128.  | 11.5 | 85        |
| 53 | Perspective: Codesign for materials science: An optimal learning approach. APL Materials, 2016, 4, 053501.   | 5.1  | 21        |
| 54 | Optimisation of GaN LEDs and the reduction of efficiency droop using active machine learning. Scientific Reports, 2016, 6, 24862.  | 3.3  | 43        |

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|----|---|------|-----------|
| 55 | Effect of misfit strain on ferroelectric domain formation at the morphotropic phase boundary. Physical Review B, 2016, 94, .  | 3.2  | 7         |
| 56 | Sandwichlike strain glass phase diagram of $\text{Ti}_{1-x}\text{Zr}_x\text{Ni}$ . Physical Review B, 2016, 94, .   | 3.2  | 19        |
| 57 | Design of High Temperature Ti-Pd-Cr Shape Memory Alloys with Small Thermal Hysteresis. Scientific Reports, 2016, 6, 28244.  | 3.3  | 27        |
| 58 | Metastable phase transformation and hcp $\rightarrow$ bcc transformation pathways in Ti and Zr under high hydrostatic pressures. Applied Physics Letters, 2016, 109, .  | 3.3  | 16        |
| 59 | Adaptive Strategies for Materials Design using Uncertainties. Scientific Reports, 2016, 6, 19660.   | 3.3  | 172       |
| 60 | Multi-objective optimization techniques to design the Pareto front of organic dielectric polymers. Computational Materials Science, 2016, 125, 92-99.   | 3.0  | 31        |
| 61 | Structure- $T_c$ Curie temperature relationships in $\text{BaTiO}_3$ ferroelectric perovskites: Anomalous behavior of $T_c$ . Physical Review B, 2016, 93, 024107.  | 3.2  | 39        |
| 62 | Accelerated search for $\text{BaTiO}_3$ -based piezoelectrics with vertical morphotropic phase boundary using Bayesian learning. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 13301-13306. | 7.1  | 114       |
| 63 | Accelerated search for materials with targeted properties by adaptive design. Nature Communications, 2016, 7, 11241.  | 12.8 | 504       |
| 64 | Machine Learning Strategy for Accelerated Design of Polymer Dielectrics. Scientific Reports, 2016, 6, 20952.  | 3.3  | 279       |
| 65 | Twin boundary activated $\beta \rightarrow \alpha'$ phase transformation in titanium under shock compression. Acta Materialia, 2016, 115, 1-9.  | 7.9  | 28        |
| 66 | Long-time behavior of the $\beta \rightarrow \alpha'$ transition in shocked zirconium: Interplay of nucleation and plastic deformation. Acta Materialia, 2016, 108, 138-142.  | 7.9  | 5         |
| 67 | Origin of low thermal hysteresis in shape memory alloy ultrathin films. Acta Materialia, 2016, 103, 407-415.  | 7.9  | 13        |
| 68 | $\alpha \leftrightarrow \omega$ and $\omega \leftrightarrow \alpha$ phase transformations in zirconium under hydrostatic pressure: A 3D mesoscale study. Acta Materialia, 2016, 102, 97-107.  | 7.9  | 19        |
| 69 | Physics-based statistical learning approach to mesoscopic model selection. Physical Review E, 2015, 92, 053301.   | 2.1  | 6         |
| 70 | Reversibility and criticality in amorphous solids. Nature Communications, 2015, 6, 8805.  | 12.8 | 127       |
| 71 | Materials Prediction via Classification Learning. Scientific Reports, 2015, 5, 13285.   | 3.3  | 68        |
| 72 | Ambient-temperature high damping capacity in TiPd-based martensitic alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 632, 110-119.                                       | 5.6  | 12        |

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|----|--|-----|-----------|
| 73 | Phase-field modeling of the beta to omega phase transformation in Zr <sub>40</sub> Nb alloys. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2015, 634, 46-54.                              | 5.6 | 19        |
| 74 | Phase transitions and phase diagram of Ba(Zr <sub>0.2</sub> Ti <sub>0.8</sub> )O <sub>3-x</sub> (Ba <sub>0.7</sub> Ca <sub>0.3</sub> )TiO <sub>2.5</sub> Pb-free system by anelastic measurement. Journal of Applied Physics, 2015, 117, 124107. | 2.5 | 35        |
| 75 | Uniaxial stress-driven coupled grain boundary motion in hexagonal close-packed metals: A molecular dynamics study. Acta Materialia, 2015, 82, 295-303.   | 7.9 | 28        |
| 76 | Modelling magnetostructural textures in magnetic shape-memory alloys: Strain and magnetic glass behaviour. Physica Status Solidi (B): Basic Research, 2014, 251, 2080-2087.  | 1.5 | 6         |
| 77 | High temperature strain glass transition in defect doped Ti <sub>40</sub> Pd martensitic alloys. Physica Status Solidi (B): Basic Research, 2014, 251, 2027-2033.  | 1.5 | 23        |
| 78 | Phase transformations in Titanium: Anisotropic deformation of $\beta$ phase. Journal of Physics: Conference Series, 2014, 500, 112042.   | 0.4 | 4         |
| 79 | Martensite formation in stainless steels under transient loading. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2014, 608, 101-105.  | 5.6 | 6         |
| 80 | Reverse phase transformation of martensite to austenite in stainless steels: a 3D phase-field study. Journal of Materials Science, 2014, 49, 3642-3651.  | 3.7 | 28        |
| 81 | Anisotropic shock response of titanium: Reorientation and transformation mechanisms. Acta Materialia, 2014, 65, 10-18.   | 7.9 | 57        |
| 82 | The kinetics of the $\beta$ to $\alpha'$ phase transformation in Zr, Ti: Analysis of data from shock-recovered samples and atomistic simulations. Acta Materialia, 2014, 77, 191-199.  | 7.9 | 40        |
| 83 | Direct observation of hierarchical nucleation of martensite and size-dependent superelasticity in shape memory alloys. Nanoscale, 2014, 6, 2067.   | 5.6 | 16        |
| 84 | Electronic structure and biaxial strain in $\text{RbHgF}_3$ perovskite and hybrid improper ferroelectricity in $\text{Na}_2\text{HgF}_4$ .   | 3.2 | 14        |
| 85 | Collective nature of plasticity in mediating phase transformation under shock compression. Physical Review B, 2014, 89, .  | 3.2 | 40        |
| 86 | Asymptotic analysis of hierarchical martensitic microstructure. Journal of the Mechanics and Physics of Solids, 2014, 72, 174-192.   | 4.8 | 10        |
| 87 | On glassy behavior in ferroics. Physica Status Solidi (B): Basic Research, 2014, 251, 2003-2009.   | 1.5 | 4         |
| 88 | Diffuse scattering as an indicator for martensitic variant selection. Acta Materialia, 2014, 66, 69-78.  | 7.9 | 9         |
| 89 | Spatial adaptive sampling in multiscale simulation. Computer Physics Communications, 2014, 185, 1857-1864.   | 7.5 | 23        |
| 90 | Adaptive ferroelectric state at morphotropic phase boundary: Coexisting tetragonal and rhombohedral phases. Acta Materialia, 2014, 71, 176-184.  | 7.9 | 77        |





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|-----|---|-----|-----------|
| 109 | Thermodynamic theory of dislocation-mediated plasticity. <i>Acta Materialia</i> , 2010, 58, 3718-3732.  | 7.9 | 139       |
| 110 | Strain glass in doped Ti <sub>50</sub> (Ni <sub>50</sub> ~ <sup>x</sup> D <sub>x</sub> ) (D=Co, Cr, Mn) alloys: Implication for the generality of strain glass in defect-containing ferroelastic systems. <i>Acta Materialia</i> , 2010, 58, 5433-5442. | 7.9 | 120       |
| 111 | Superelasticity in bcc nanowires by a reversible twinning mechanism. <i>Physical Review B</i> , 2010, 82, .   | 3.2 | 99        |
| 112 | Evidence for short-time limit of martensite deaging in shape-memory alloys: Experiment and atomistic simulation. <i>Applied Physics Letters</i> , 2010, 97, 171902.   | 3.3 | 4         |
| 113 | Microstructure from ferroelastic transitions using strain pseudospin clock models in two and three dimensions: A local mean-field analysis. <i>Physical Review B</i> , 2010, 82, .  | 3.2 | 21        |
| 114 | Inverse martensitic transformation in Zr nanowires. <i>Physical Review B</i> , 2010, 81, .  | 3.2 | 28        |
| 115 | Origin of ultrafast annihilation effect of martensite aging: Atomistic simulations. <i>Physical Review B</i> , 2010, 82, .  | 3.2 | 4         |
| 116 | Thermally Induced Local Failures in Quasi-One-Dimensional Systems: Collapse in Carbon Nanotubes, Necking in Nanowires, and Opening of Bubbles in DNA. <i>Physical Review Letters</i> , 2010, 104, 025503.   | 7.8 | 10        |
| 117 | Effects of disorder in ferroelastics: A spin model for strain glass. <i>Physical Review B</i> , 2010, 81, .   | 3.2 | 41        |
| 118 | Effects of criticality and disorder on piezoelectric properties of ferroelectrics. <i>Journal of Physics Condensed Matter</i> , 2010, 22, 345902.   | 1.8 | 27        |
| 119 | Microscopic mechanism of martensitic stabilization in shape-memory alloys: Atomic-level processes. <i>Physical Review B</i> , 2010, 81, .   | 3.2 | 24        |
| 120 | Control of Ferroelectric Aging by Manipulating Point Defects. <i>Ferroelectrics</i> , 2010, 401, 45-50.   | 0.6 | 3         |
| 121 | Aging Effect in Acceptor-Donor Co-Doped Ferroelectrics. <i>Ferroelectrics</i> , 2010, 404, 141-146.   | 0.6 | 4         |
| 122 | Aging effect in paraelectric state of ferroelectrics: Implication for a microscopic explanation of ferroelectric deaging. <i>Applied Physics Letters</i> , 2009, 94, .  | 3.3 | 31        |
| 123 | High temperature strain glass in Ti <sub>50</sub> (Pd <sub>50</sub> ~ <sup>x</sup> Cr <sub>x</sub> ) alloy and the associated shape memory effect and superelasticity. <i>Applied Physics Letters</i> , 2009, 95, .                                     | 3.3 | 70        |
| 124 | Thermal Stability of Strained Nanowires. <i>Physical Review Letters</i> , 2009, 102, 245504.  | 7.8 | 10        |
| 125 | Nanoscale Heterogeneity in Functional Materials. <i>MRS Bulletin</i> , 2009, 34, 822-831.   | 3.5 | 14        |
| 126 | Non-equilibrium particle-field simulations of polymer-nanocomposite dynamics. <i>Chemical Engineering Science</i> , 2009, 64, 4754-4757.  | 3.8 | 10        |



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|-----|---|------|-----------|
| 127 | Energy minimization related to the nonlinear Schrödinger equation. Journal of Computational Physics, 2009, 228, 2572-2577.  | 3.8  | 17        |
| 128 | Interfaces in ferroelastics: Fringing fields, microstructure, and size and shape effects. Physical Review B, 2009, 79, .  | 3.2  | 30        |
| 129 | Numerical method for hydrodynamic transport of inhomogeneous polymer melts. Journal of Computational Physics, 2007, 224, 681-698.   | 3.8  | 14        |
| 130 | Dynamic strain loading of cubic to tetragonal martensites. Acta Materialia, 2006, 54, 2109-2120.  | 7.9  | 55        |
| 131 | Hydrodynamic Self-Consistent Field Theory for Inhomogeneous Polymer Melts. Physical Review Letters, 2006, 97, 114501.   | 7.8  | 21        |
| 132 | Dynamical heterogeneity in the Ising spin glass. Physical Review E, 1998, 57, 7350-7353.  | 2.1  | 31        |
| 133 | Effects of Hydrodynamics on Phase Transition Kinetics in Two-Dimensional Binary Fluids. Physical Review Letters, 1995, 74, 3852-3855.   | 7.8  | 53        |
| 134 | Surface phase transitions in polymer systems. Reviews of Modern Physics, 1993, 65, 87-113.  | 45.6 | 179       |
| 135 | STATISTICAL ERROR IN A CHORD ESTIMATOR OF CORRELATION DIMENSION: THE "RULE OF FIVE". International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1993, 03, 765-771. | 1.7  | 35        |
| 136 | Crossover behavior for self-avoiding walks interacting with a surface. Physical Review A, 1990, 42, 4591-4600.  | 2.5  | 23        |
| 137 | The climate attractor over short timescales. Nature, 1987, 326, 64-66.  | 27.8 | 96        |
| 138 | Spin Models for Ferroelastics: towards a Spin Glass Description of Strain Glass. Solid State Phenomena, 0, 172-174, 1078-1083.  | 0.3  | 2         |
| 139 | Influence of Dislocations on the Spatial Variation of Microstructure in Martensites. Key Engineering Materials, 0, 465, 77-80.  | 0.4  | 0         |
| 140 | Disentangling the effect of doping chemistry on the energy storage property of barium titanate ferroelectrics via data science tools. Journal of Materials Chemistry C, 0, , .              | 5.5  | 1         |