# Jeffrey W Bullard

## List of Publications by Year in Descending Order



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| 84 papers | 3,701 citations | 30 h-index | 59 g-index |
| 86 ext. papers | 4,406 ext. citations | 5.7 avg, IF | 5.7 L-index |

| # | Paper | IF | Citations |
|---|---|---|---|
| 84 | How do specific surface area and particle size distribution change when granular media dissolve?. *Chemical Engineering Journal*, **2021**, 406, 127098 | 14.7 | 5 |
| 83 | Using fine sand shape metrics determined from X-ray microcomputed tomography to illustrate the influence of particle shape on the properties of dispersed mortars. *Cement and Concrete Composites*, **2021**, 123, 104176 | 8.6 | 1 |
| 82 | A new nonlinear formulation-based prediction approach using artificial neural network (ANN) model for rubberized cement composite. *Engineering With Computers*, **2020**, 1 | 4.5 | 5 |
| 81 | Hydrodynamic factors influencing mineral dissolution rates. *Chemical Geology*, **2020**, 541, 119578 | 4.2 | 2 |
| 80 | In situ nano-scale observation of C3A dissolution in water. *Cement and Concrete Research*, **2020**, 132, 106044 | 10.3 | 8 |
| 79 | Temperature dependence of gypsum dissolution rates. *Cement and Concrete Research*, **2020**, 129, 105969 | 10.3 | 9 |
| 78 | Dissolution and initial hydration behavior of tricalcium aluminate in low activity sulfate solutions. *Cement and Concrete Research*, **2020**, 130, 105989 | 10.3 | 11 |
| 77 | Calcium nitrate: A chemical admixture to inhibit aggregate dissolution and mitigate expansion caused by alkali-silica reaction. *Cement and Concrete Composites*, **2020**, 110, 103592 | 8.6 | 7 |
| 76 | Topological controls on aluminosilicate glass dissolution: Complexities induced in hyperalkaline aqueous environments. *Journal of the American Ceramic Society*, **2020**, 103, 6198-6207 | 3.8 | 8 |
| 75 | Dissolution and early hydration of tricalcium aluminate in aqueous sulfate solutions. *Cement and Concrete Research*, **2020**, 137, 106191 | 10.3 | 6 |
| 74 | Machine learning can predict setting behavior and strength evolution of hydrating cement systems. *Journal of the American Ceramic Society*, **2020**, 103, 480-490 | 3.8 | 15 |
| 73 | Enhancing Silicate Dissolution Kinetics in Hyperalkaline Environments. *Journal of Physical Chemistry C*, **2019**, 123, 3687-3695 | 3.8 | 6 |
| 72 | Dissolution rate spectra of dicalcium silicate in water of varying activity. *Cement and Concrete Research*, **2019**, 118, 69-83 | 10.3 | 15 |
| 71 | Using Particle Characterization to Study Fly Ash Dissolution and Leaching in Water and KOH Solution. *ACI Materials Journal*, **2019**, 116, | 0.9 | 1 |
| 70 | Three-dimensional shape characterization of fine sands and the influence of particle shape on the packing and workability of mortars. *Cement and Concrete Composites*, **2019**, 97, 125-142 | 8.6 | 19 |
| 69 | Measurement and modeling needs for microstructure and reactivity of next-generation concrete binders. *Cement and Concrete Composites*, **2019**, 101, 24-31 | 8.6 | 5 |
| 68 | Creep and relaxation of cement paste caused by stress-induced dissolution of hydrated solid components. *Journal of the American Ceramic Society*, **2018**, 101, 4237-4255 | 3.8 | 10 |

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| 67 | A Critical Comparison of 3D Experiments and Simulations of Tricalcium Silicate Hydration. *Journal of the American Ceramic Society*, **2018**, 101, 1453-1470 | 3.8 | 10 |
| 66 | An empirical rate law for gypsum powder dissolution. *Chemical Geology*, **2018**, 498, 96-105 | 4.2 | 10 |
| 65 | The filler effect: The influence of filler content and type on the hydration rate of tricalcium silicate. *Journal of the American Ceramic Society*, **2017**, 100, 3316-3328 | 3.8 | 45 |
| 64 | nanoscale observations of gypsum dissolution by digital holographic microscopy. *Chemical Geology*, **2017**, 460, 25-36 | 4.2 | 30 |
| 63 | Cements in the 21 Century: Challenges, Perspectives, and Opportunities. *Journal of the American Ceramic Society*, **2017**, 100, 2746-2773 | 3.8 | 104 |
| 62 | An improved basis for characterizing the suitability of fly ash as a cement replacement agent. *Journal of the American Ceramic Society*, **2017**, 100, 4785-4800 | 3.8 | 27 |
| 61 | A multiscale microstructure model of cement paste sulfate attack by crystallization pressure. *Modelling and Simulation in Materials Science and Engineering*, **2017**, 25, 065013 | 2 | 10 |
| 60 | Simulation of the Influence of Intrinsic C-S-H Aging on Time-Dependent Relaxation of Hydrating Cement Paste. *Construction and Building Materials*, **2017**, 157, 1024-1031 | 6.7 | 5 |
| 59 | Dissolution Kinetics of Cubic Tricalcium Aluminate Measured by Digital Holographic Microscopy. *Langmuir*, **2017**, 33, 9645-9656 | 4 | 24 |
| 58 | Calcite dissolution rate spectra measured by digital holographic microscopy. *Geochimica Et Cosmochimica Acta*, **2017**, 213, 317-329 | 5.5 | 33 |
| 57 | Topological controls on the dissolution kinetics of glassy aluminosilicates. *Journal of the American Ceramic Society*, **2017**, 100, 5521-5527 | 3.8 | 34 |
| 56 | 3D analytical mathematical models of random star-shape particles via a combination of X-ray computed microtomography and spherical harmonic analysis. *Advanced Powder Technology*, **2017**, 28, 325-339 | 4.6 | 70 |
| 55 | Irreversible desiccation shrinkage of cement paste caused by cement grain dissolution and hydrate precipitation. *Materials and Structures/Materiaux Et Constructions*, **2017**, 50, 1 | 3.4 | 7 |
| 54 | The Influence of Water Activity on the Hydration Rate of Tricalcium Silicate. *Journal of the American Ceramic Society*, **2016**, 99, 2481-2492 | 3.8 | 17 |
| 53 | Phase Analysis of Portland Cement by Combined Quantitative X-Ray Powder Diffraction and Scanning Electron Microscopy. *Journal of Research of the National Institute of Standards and Technology*, **2016**, 121, 47-107 | 1.3 | 36 |
| 52 | Factors influencing the stability of AFm and AFt in the CaAlSOH system at 25 ℃. *Journal of the American Ceramic Society*, **2016**, 99, 1031-1041 | 3.8 | 25 |
| 51 | An Ideal Solid Solution Model for C-S-H. *Journal of the American Ceramic Society*, **2016**, 99, 4137-4145 | 3.8 | 15 |
| 50 | Direct Measurements of 3D Structure, Chemistry and Mass Density During the Induction Period of CS Hydration. *Cement and Concrete Research*, **2016**, 89, 14-26 | 10.3 | 30 |

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| 49 | Direct three-dimensional observation of the microstructure and chemistry of CS hydration. *Cement and Concrete Research*, **2016**, 88, 157-169 | 10.3 | 38 |
| 48 | New insights into the prehydration of cement and its mitigation. *Cement and Concrete Research*, **2015**, 70, 94-103 | 10.3 | 28 |
| 47 | Time dependent driving forces and the kinetics of tricalcium silicate hydration. *Cement and Concrete Research*, **2015**, 74, 26-34 | 10.3 | 65 |
| 46 | Microstructural Origins of Cement Paste Degradation by External Sulfate Attack. *Construction and Building Materials*, **2015**, 96, 391-403 | 6.7 | 50 |
| 45 | Computing the time evolution of the apparent viscoelastic/viscoplastic Poisson ratio of hydrating cement paste. *Cement and Concrete Composites*, **2015**, 56, 121-133 | 8.6 | 19 |
| 44 | Modeling the apparent and intrinsic viscoelastic relaxation of hydrating cement paste. *Cement and Concrete Composites*, **2015**, 55, 322-330 | 8.6 | 26 |
| 43 | Incorporating D3.js information visualization into immersive virtual environments **2015**, | | 1 |
| 42 | A model of phase stability, microstructure and properties during leaching of portland cement binders. *Cement and Concrete Composites*, **2014**, 49, 9-19 | 8.6 | 42 |
| 41 | Simulation of the hydration kinetics and elastic moduli of cement mortars by microstructural modelling. *Cement and Concrete Composites*, **2014**, 52, 54-63 | 8.6 | 21 |
| 40 | Contact function, uniform-thickness shell volume, and convexity measure for 3D star-shaped random particles. *Powder Technology*, **2013**, 237, 191-201 | 5.2 | 63 |
| 39 | Defining shape measures for 3D star-shaped particles: Sphericity, roundness, and dimensions. *Powder Technology*, **2013**, 249, 241-252 | 5.2 | 86 |
| 38 | Cement hydration: the role of adsorption and crystal growth. *Crystal Research and Technology*, **2013** , 48, 903-918 | 1.3 | 24 |
| 37 | Factors that Influence Electrical Resistivity Measurements in Cementitious Systems. *Transportation Research Record*, **2013**, 2342, 90-98 | 1.7 | 69 |
| 36 | The Filler Effect: The Influence of Filler Content and Surface Area on Cementitious Reaction Rates. *Journal of the American Ceramic Society*, **2013**, 96, 1978-1990 | 3.8 | 213 |
| 35 | Mechanisms of cement hydration. *Cement and Concrete Research*, **2011**, 41, 1208-1223 | 10.3 | 1012 |
| 34 | Modeling and simulation of cement hydration kinetics and microstructure development. *Cement and Concrete Research*, **2011**, 41, 1257-1278 | 10.3 | 230 |
| 33 | Why alite stops hydrating below 80% relative humidity. *Cement and Concrete Research*, **2011**, 41, 987-992 | 10.3 | 60 |
| 32 | From electrons to infrastructure: Engineering concrete from the bottom up. *Cement and Concrete Research*, **2011**, 41, 727-735 | 10.3 | 37 |

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| 31 | Coupling thermodynamics and digital image models to simulate hydration and microstructure development of portland cement pastes. *Journal of Materials Research*, **2011**, 26, 609-622 | 2.5 | 36 |
| 30 | Shape Comparison between 0.42.0 and 2030 Cement Particles. *Journal of the American Ceramic Society*, **2010**, 93, 1626 | 3.8 | 20 |
| 29 | New Insights Into the Effect of Calcium Hydroxide Precipitation on the Kinetics of Tricalcium Silicate Hydration. *Journal of the American Ceramic Society*, **2010**, 93, 1894 | 3.8 | 66 |
| 28 | A parallel reaction-transport model applied to cement hydration and microstructure development. *Modelling and Simulation in Materials Science and Engineering*, **2010**, 18, 025007 | 2 | 54 |
| 27 | Capillary rise between planar surfaces. *Physical Review E*, **2009**, 79, 011604 | 2.4 | 27 |
| 26 | A comparison of viscosity-concentration relationships for emulsions. *Journal of Colloid and Interface Science*, **2009**, 330, 186-93 | 9.3 | 47 |
| 25 | Extending Measurement Science to Interactive Visualisation Environments. *Advanced Information and Knowledge Processing*, **2009**, 287-302 | 0.3 | 3 |
| 24 | Characterization and Modeling of Pores and Surfaces in Cement Paste. *Journal of Advanced Concrete Technology*, **2008**, 6, 5-29 | 2.3 | 145 |
| 23 | A Determination of Hydration Mechanisms for Tricalcium Silicate Using a Kinetic Cellular Automaton Model. *Journal of the American Ceramic Society*, **2008**, 91, 2088-2097 | 3.8 | 107 |
| 22 | Approximate rate constants for nonideal diffusion and their application in a stochastic model. *Journal of Physical Chemistry A*, **2007**, 111, 2084-92 | 2.8 | 28 |
| 21 | A three-dimensional microstructural model of reactions and transport in aqueous mineral systems. *Modelling and Simulation in Materials Science and Engineering*, **2007**, 15, 711-738 | 2 | 45 |
| 20 | Coarse-graining approximation for simulating surface reaction kinetics in particulate systems. *Computational Materials Science*, **2006**, 38, 369-373 | 3.2 | 2 |
| 19 | A model investigation of the influence of particle shape on portland cement hydration. *Cement and Concrete Research*, **2006**, 36, 1007-1015 | 10.3 | 68 |
| 18 | Analysis of CCRL proficiency cements 151 and 152 using the Virtual Cement and Concrete Testing Laboratory. *Cement and Concrete Research*, **2006**, 36, 1548-1555 | 10.3 | 21 |
| 17 | Microstructural Development during Sintering of Lithium Fluoride. *Journal of the American Ceramic Society*, **2005**, 80, 2395-2400 | 3.8 | 9 |
| 16 | Reactive Sintering and Retrograde Densification of Bulk Bismuth-Based Superconductors. *Journal of the American Ceramic Society*, **2004**, 83, 2365-2368 | 3.8 | 5 |
| 15 | Stability of voids formed in cavities at liquid-solid interfaces. *Journal of Colloid and Interface Science* , **2004**, 276, 188-96 | 9.3 | 1 |
| 14 | Shape analysis of a reference cement. *Cement and Concrete Research*, **2004**, 34, 1933-1937 | 10.3 | 82 |

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| 13 | A novel thin film phase of oriented MgO grown from a liquid solution. *Journal of Crystal Growth*, **2001**, 233, 389-398 | 1.6 | 5 |
| 12 | Equilibria and kinetics of mass transport between crystal facets: a comparison of two models. *Acta Materialia*, **1999**, 47, 3057-3061 | 8.4 | 5 |
| 11 | Equilibrium Shapes of Solid Particles on Elastically Mismatched Substrates. *Journal of Colloid and Interface Science*, **1999**, 219, 320-326 | 9.3 | 5 |
| 10 | Constrained phase evolution in gel-derived thin films of magnesium oxide. *Journal of Materials Chemistry*, **1999**, 9, 949-953 | | 16 |
| 9 | Sintering of silver and copper nanoparticles on (001) copper observed by in-situ ultrahigh vacuum transmission electron microscopy. *Scripta Materialia*, **1998**, 10, 731-739 | | 28 |
| 8 | Interplay of capillary and elastic driving forces during microstructural evolution: Applications of a digital image model. *Journal of Applied Physics*, **1998**, 83, 4477-4486 | 2.5 | 9 |
| 7 | Digital-image-based models of two-dimensional microstructural evolution by surface diffusion and vapor transport. *Journal of Applied Physics*, **1997**, 81, 159-168 | 2.5 | 23 |
| 6 | In-situ observations of classical grain growth mechanisms during sintering of copper nanoparticles on (001) copper. *Applied Physics Letters*, **1997**, 71, 1631-1633 | 3.4 | 48 |
| 5 | Numerical simulations of transient-stage Ostwald ripening and coalescence in two dimensions. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing* , **1997**, 238, 128-139 | 5.3 | 15 |
| 4 | Comment on A lattice model for solid-state sintering: simple particle arrays *Computational Materials Science*, **1996**, 6, 350-352 | 3.2 | |
| 3 | Possible Explanations of Transient Neck Formation between Pairs of (100) Faceted Particles. *Journal of the American Ceramic Society*, **1996**, 79, 2443-2451 | 3.8 | 6 |
| 2 | Thermodynamics and Kinetics of Surface Area Changes of Faceted Particles. *Journal of the American Ceramic Society*, **1994**, 77, 2314-2318 | 3.8 | 18 |
| 1 | Shape Changes by {100} Lithium Fluoride Ridge-Channel Arrays and of Lithium Fluoride Particles at Sintering Temperatures. *Journal of the American Ceramic Society*, **1994**, 77, 2319-2326 | 3.8 | 6 |