Gaurav N Sant

List of Publications by Year
in descending order

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107	3,561	134610	175968
papers	citations	34 h-index	55 g-index

108	108	108	3110
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Dissolution Amplification by Resonance and Cavitational Stimulation at Ultrasonic and Megasonic Frequencies. Journal of Physical Chemistry C, 2022, 126, 3432-3442.	1.5	5
2	Experimental evidence of auxeticity in ion implanted single crystal calcite. Scientific Reports, 2022, 12, 6071.	1.6	1
3	A pilot-process for calcium hydroxide production from iron slag by low-temperature precipitation. Journal of Environmental Chemical Engineering, 2022, 10, 107792.	3.3	1
4	Process Simulations Reveal the Carbon Dioxide Removal Potential of a Process That Mineralizes Industrial Waste Streams via an Ion Exchange-Based Regenerable pH Swing. ACS Sustainable Chemistry and Engineering, 2022, 10, 6255-6264.	3.2	3
5	Predicting compressive strength of alkali-activated systems based on the network topology and phase assemblages using tree-structure computing algorithms. Construction and Building Materials, 2022, 336, 127557.	3.2	11
6	How Brine Composition Affects Fly Ash Reactions: The Influence of (Cat-, An-)ion Type. Advances in Civil Engineering Materials, 2022, 11, 619-638.	0.2	3
7	Ultrafast stiffening of concentrated thermoresponsive mineral suspensions. Materials and Design, 2022, 221, 110905.	3.3	2
8	Influence of water activity on belite (Î²â€€ 2 S) hydration. Journal of the American Ceramic Society, 2021, 104, 1831-1840.	1.9	8
9	The role of gas flow distributions on CO₂ mineralization within monolithic cemented composites: coupled CFD-factorial design approach. Reaction Chemistry and Engineering, 2021, 6, 494-504.	1.9	5
10	Saline Water-Based Mineralization Pathway for Gigatonne-Scale CO₂ Management. ACS Sustainable Chemistry and Engineering, 2021, 9, 1073-1089.	3.2	53
11	Machine Learning Enables Rapid Screening of Reactive Fly Ashes Based on Their Network Topology. ACS Sustainable Chemistry and Engineering, 2021, 9, 2639-2650.	3.2	24
12	Rigidity theory of glass: Determining the onset temperature of topological constraints by molecular dynamics. Journal of Non-Crystalline Solids, 2021, 554, 120614.	1.5	5
13	Using machine learning to predict concreteâ€™s strength: learning from small datasets. Engineering Research Express, 2021, 3, 015022.	0.8	12
14	Selective sulfur removal from semi-dry flue gas desulfurization coal fly ash for concrete and carbon dioxide capture applications. Waste Management, 2021, 121, 117-126.	3.7	23
15	Machine learning enables prompt prediction of hydration kinetics of multicomponent cementitious systems. Scientific Reports, 2021, 11, 3922.	1.6	23
16	Analytical model of the network topology and rigidity of calcium aluminosilicate glasses. Journal of the American Ceramic Society, 2021, 104, 3947-3962.	1.9	14
17	Topological origin of phase separation in hydrated gels. Journal of Colloid and Interface Science, 2021, 590, 199-209.	5.0	8
18	Fly Ashâ€“Ca(OH)₂ Reactivity in Hypersaline NaCl and CaCl₂ Brines. ACS Sustainable Chemistry and Engineering, 2021, 9, 8561-8571.	3.2	7

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19	Controls on CO₂ Mineralization Using Natural and Industrial Alkaline Solids under Ambient Conditions. ACS Sustainable Chemistry and Engineering, 2021, 9, 10727-10739.	3.2	25
20	Removal of As(III) by Electrically Conducting Ultrafiltration Membranes. Water Research, 2021, 204, 117592.	5.3	15
21	New insights into the mechanisms of carbon dioxide mineralization by portlandite. AICHE Journal, 2021, 67, e17160.	1.8	14
22	Calcination-free production of calcium hydroxide at sub-boiling temperatures. RSC Advances, 2021, 11, 1762-1772.	1.7	8
23	Machine learning can predict setting behavior and strength evolution of hydrating cement systems. Journal of the American Ceramic Society, 2020, 103, 480-490.	1.9	36
24	Relationship between aqueous chemistry and composition, structure, and solubility of sodium aluminosilicate hydrates. Journal of the American Ceramic Society, 2020, 103, 2160-2172.	1.9	9
25	Topological controls on aluminosilicate glass dissolution: Complexities induced in hyperalkaline aqueous environments. Journal of the American Ceramic Society, 2020, 103, 6198-6207.	1.9	12
26	Precipitation of calciumâ€“aluminoâ€“silicateâ€“hydrate gels: The role of the internal stress. Journal of Chemical Physics, 2020, 153, 014501.	1.2	12
27	Atomic Dislocations and Bond Rupture Govern Dissolution Enhancement under Acoustic Stimulation. ACS Applied Materials & Interfaces, 2020, 12, 55399-55410.	4.0	6
28	Enhancing Polyvalent Cation Rejection Using Perfluorophenylazide-Grafted-Copolymer Membrane Coatings. ACS Applied Materials & Interfaces, 2020, 12, 42030-42040.	4.0	11
29	Temperature-Induced Aggregation in Portlandite Suspensions. Langmuir, 2020, 36, 10811-10821.	1.6	7
30	Implementation of Ion Exchange Processes for Carbon Dioxide Mineralization Using Industrial Waste Streams. Frontiers in Energy Research, 2020, 8, .	1.2	6
31	The effects of (diâ€,triâ€valent)â€cation partitioning and intercalant anionâ€type on the solubility of hydrotalcites. Journal of the American Ceramic Society, 2020, 103, 6025-6039.	1.9	14
32	Elucidating the grain-orientation dependent corrosion rates of austenitic stainless steels. Materials and Design, 2020, 191, 108583.	3.3	46
33	Dispersing nano- and micro-sized portlandite particulates via electrosteric exclusion at short screening lengths. Soft Matter, 2020, 16, 3425-3435.	1.2	6
34	How clay particulates affect flow cessation and the coiling stability of yield stress-matched cementing suspensions. Soft Matter, 2020, 16, 3929-3940.	1.2	2
35	Role of Internal Stress in the Early-Stage Nucleation of Amorphous Calcium Carbonate Gels. Applied Sciences (Switzerland), 2020, 10, 4359.	1.3	4
36	Mineral Dissolution under Electric Stimulation. Journal of Physical Chemistry C, 2020, 124, 16515-16523.	1.5	1

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37	zeo19: A thermodynamic database for assessing zeolite stability during the corrosion of nuclear waste immobilization glasses. Npj Materials Degradation, 2020, 4, .	2.6	14
38	Elucidating the corrosion-related degradation mechanisms of a Ti-6Al-4V dental implant. Dental Materials, 2020, 36, 431-441.	1.6	38
39	Influence of water activity on hydration of tricalcium aluminateâ€calcium sulfate systems. Journal of the American Ceramic Society, 2020, 103, 3851-3870.	1.9	18
40	Calcium nitrate: A chemical admixture to inhibit aggregate dissolution and mitigate expansion caused by alkali-silica reaction. Cement and Concrete Composites, 2020, 110, 103592.	4.6	17
41	Next-Generation Asymmetric Membranes Using Thin-Film Liftoff. Nano Letters, 2019, 19, 5036-5043.	4.5	28
42	How Microstructure and Pore Moisture Affect Strength Gain in Portlandite-Enriched Composites That Mineralize CO₂. ACS Sustainable Chemistry and Engineering, 2019, 7, 13053-13061.	3.2	44
43	Highly Permeable Polyanilineâ€“Graphene Oxide Nanocomposite Membranes for CO₂ Separations. ACS Applied Polymer Materials, 2019, 1, 3233-3241.	2.0	33
44	Electrochemically Enhanced Dissolution of Silica and Alumina in Alkaline Environments. Langmuir, 2019, 35, 15651-15660.	1.6	5
45	Enhancing Silicate Dissolution Kinetics in Hyperalkaline Environments. Journal of Physical Chemistry C, 2019, 123, 3687-3695.	1.5	12
46	Simulating the Fracture of Notched Mortar Beams through Extended Finite-Element Method and Peridynamics. Journal of Engineering Mechanics - ASCE, 2019, 145, 04019049.	1.6	13
47	Understanding Oxygen Nonstoichiometry in Mayenite: From Electride to Oxygen Radical Clathrate. Journal of Physical Chemistry C, 2019, 123, 11982-11992.	1.5	5
48	Atomistic origin of the passivation effect in hydrated silicate glasses. Npj Materials Degradation, 2019, 3, .	2.6	25
49	Long-term creep deformations in colloidal calciumâ€“silicateâ€“hydrate gels by accelerated aging simulations. Journal of Colloid and Interface Science, 2019, 542, 339-346.	5.0	19
50	A Nitrogen- and Self-Doped Titania Coating Enables the On-Demand Release of Free Radical Species. ACS Omega, 2019, 4, 18567-18573.	1.6	2
51	The effect of irradiation on the atomic structure and chemical durability of calcite and dolomite. Npj Materials Degradation, 2019, 3, .	2.6	17
52	The role of the network-modifier's field-strength in the chemical durability of aluminoborate glasses. Journal of Non-Crystalline Solids, 2019, 505, 279-285.	1.5	32
53	Linking fresh paste microstructure, rheology and extrusion characteristics of cementitious binders for 3D printing. Journal of the American Ceramic Society, 2019, 102, 3951-3964.	1.9	59
54	Can the compressive strength of concrete be estimated from knowledge of the mixture proportions?: New insights from statistical analysis and machine learning methods. Cement and Concrete Research, 2019, 115, 379-388.	4.6	207

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55	Chemical composition of calcium-silicate-hydrate gels: Competition between kinetics and thermodynamics. Physical Review Materials, 2019, 3, .	0.9	15
56	The hydrophilic-to-hydrophobic transition in glassy silica is driven by the atomic topology of its surface. Journal of Chemical Physics, 2018, 148, 074503.	1.2	35
57	Clinkering-free cementation by fly ash carbonation. Journal of CO2 Utilization, 2018, 23, 117-127.	3.3	55
58	Isothermal Stimulation of Mineral Dissolution Processes by Acoustic Perturbation. Journal of Physical Chemistry C, 2018, 122, 28665-28673.	1.5	10
59	Revealing How Alkali Cations Affect the Surface Reactivity of Stainless Steel in Alkaline Aqueous Environments. ACS Omega, 2018, 3, 14680-14688.	1.6	7
60	Stability of Calciumâ€“Alumino Layered-Double-Hydroxide Nanocomposites in Aqueous Electrolytes. Industrial & Engineering Chemistry Research, 2018, 57, 13417-13426.	1.8	5
61	Steel corrosion inhibition by calcium nitrate in halide-enriched completion fluid environments. Npj Materials Degradation, 2018, 2, .	2.6	17
62	New insights into the atomic structure of amorphous TiO2 using tight-binding molecular dynamics. Journal of Chemical Physics, 2018, 149, 094501.	1.2	11
63	Direct observation of pitting corrosion evolutions on carbon steel surfaces at the nano-to-micro-scales. Scientific Reports, 2018, 8, 7990.	1.6	36
64	New insights into the solâ€“gel condensation of silica by reactive molecular dynamics simulations. Journal of Chemical Physics, 2018, 148, 234504.	1.2	44
65	Anomalous variations in the viscous activation energy of suspensions induced by fractal structuring. Journal of Colloid and Interface Science, 2018, 530, 603-609.	5.0	9
66	Role of Electrochemical Surface Potential and Irradiation on Garnet-Type Almandineâ€™s Dissolution Kinetics. Journal of Physical Chemistry C, 2018, 122, 17268-17277.	1.5	15
67	A thermodynamics-based approach for examining the suitability of cementitious formulations for solidifying and stabilizing coal-combustion wastes. Journal of Environmental Management, 2018, 217, 278-287.	3.8	15
68	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.	1.9	70
69	Cements in the 21st century: Challenges, perspectives, and opportunities. Journal of the American Ceramic Society, 2017, 100, 2746-2773.	1.9	168
70	Irradiation- vs. vitrification-induced disordering: The case of ?-quartz and glassy silica. Journal of Chemical Physics, 2017, 146, 204502.	1.2	35
71	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.	1.9	48
72	The influence of composition and temperature on hydrated phase assemblages in magnesium oxychloride cements. Journal of the American Ceramic Society, 2017, 100, 3246-3261.	1.9	36

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73	Câ€“(N)â€“Sâ€“H and Nâ€“Aâ€“Sâ€“H gels: Compositions and solubility data at 25Â°C and 50Â°C. Journal of the American Ceramic Society, 2017, 100, 2700-2711.	1.9	41
74	Monovalent Ion Exchange Kinetics of Hydrated Calcium-Alumino Layered Double Hydroxides. Industrial & Engineering Chemistry Research, 2017, 56, 63-74.	1.8	18
75	Cooling rate effects in sodium silicate glasses: Bridging the gap between molecular dynamics simulations and experiments. Journal of Chemical Physics, 2017, 147, 074501.	1.2	107
76	Thermometer Effect: Origin of the Mixed Alkali Effect in Glass Relaxation. Physical Review Letters, 2017, 119, 095501.	2.9	47
77	Anion capture and exchange by functional coatings: New routes to mitigate steel corrosion in concrete infrastructure. Cement and Concrete Research, 2017, 101, 82-92.	4.6	17
78	Effects of Irradiation on Albiteâ€™s Chemical Durability. Journal of Physical Chemistry A, 2017, 121, 7835-7845.	1.1	37
79	Re-examining the influence of the inclusion characteristics on the drying shrinkage of cementitious composites. Construction and Building Materials, 2017, 146, 713-722.	3.2	7
80	Enthalpy Landscape Dictates the Irradiation-Induced Disordering of Quartz. Physical Review X, 2017, 7, .	2.8	27
81	Topological controls on the dissolution kinetics of glassy aluminosilicates. Journal of the American Ceramic Society, 2017, 100, 5521-5527.	1.9	48
82	Topological Origin of the Network Dilation Anomaly in Ion-Exchanged Glasses. Physical Review Applied, 2017, 8, .	1.5	17
83	Reactive Molecular Dynamics Simulations of Sodium Silicate Glasses â€” Toward an Improved Understanding of the Structure. International Journal of Applied Glass Science, 2017, 8, 276-284.	1.0	44
84	Irradiation-driven amorphous-to-glassy transition in quartz: The crucial role of the medium-range order in crystallization. Physical Review Materials, 2017, 1, .	0.9	27
85	Direct Experimental Evidence for Differing Reactivity Alterations of Minerals following Irradiation: The Case of Calcite and Quartz. Scientific Reports, 2016, 6, 20155.	1.6	46
86	Confined Water in Layered Silicates: The Origin of Anomalous Thermal Expansion Behavior in Calcium-Silicate-Hydrates. ACS Applied Materials & Interfaces, 2016, 8, 35621-35627.	4.0	43
87	A dissolution-precipitation mechanism is at the origin of concrete creep in moist environments. Journal of Chemical Physics, 2016, 145, 054701.	1.2	77
88	The influence of slightly and highly soluble carbonate salts on phase relations in hydrated calcium aluminate cements. Journal of Materials Science, 2016, 51, 6062-6074.	1.7	25
89	Misfit Stresses Caused by Atomic Size Mismatch: The Origin of Doping-Induced Destabilization of Dicalcium Silicate. Crystal Growth and Design, 2016, 16, 3124-3132.	1.4	31
90	Topological Control on Silicatesâ€™ Dissolution Kinetics. Langmuir, 2016, 32, 4434-4439.	1.6	75

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91	Vertical scanning interferometry: A new method to quantify re-/de-mineralization dynamics of dental enamel. Dental Materials, 2016, 32, e251-e261.	1.6	10
92	The Influence of Water Activity on the Hydration Rate of Tricalcium Silicate. Journal of the American Ceramic Society, 2016, 99, 2481-2492.	1.9	24
93	Ternary blends containing slag and interground/blended limestone: Hydration, strength, and pore structure. Construction and Building Materials, 2016, 102, 113-124.	3.2	103
94	Stretched Exponential Relaxation of Glasses at Low Temperature. Physical Review Letters, 2015, 115, 165901.	2.9	53
95	Nature of radiation-induced defects in quartz. Journal of Chemical Physics, 2015, 143, 024505.	1.2	38
96	Elucidating the Role of the Aluminous Source on Limestone Reactivity in Cementitious Materials. Journal of the American Ceramic Society, 2015, 98, 4076-4089.	1.9	46
97	New insights into the prehydration of cement and its mitigation. Cement and Concrete Research, 2015, 70, 94-103.	4.6	34
98	Framework and Channel Modifications in Mayenite (12CaOÂ·7Al2O3) Nanocages By Cationic Doping. Chemistry of Materials, 2015, 27, 4731-4741.	3.2	43
99	Direct Carbonation of Ca(OH)₂ Using Liquid and Supercritical CO₂: Implications for Carbon-Neutral Cementation. Industrial & Engineering Chemistry Research, 2015, 54, 8908-8918.	1.8	105
100	Water Vapor Sorption in Cementitious Materialsâ€"Measurement, Modeling and Interpretation. Transport in Porous Media, 2014, 103, 69-98.	1.2	38
101	Influence of (Al, Fe, Mg) Impurities on Triclinic Ca₃SiO₅: Interpretations from DFT Calculations. Crystal Growth and Design, 2014, 14, 2158-2171.	1.4	29
102	Observations on the rheological response of alkali activated fly ash suspensions: the role of activator type and concentration. Rheologica Acta, 2014, 53, 843-855.	1.1	89
103	The rheological properties of ternary binders containing Portland cement, limestone, and metakaolin or fly ash. Cement and Concrete Research, 2013, 52, 196-207.	4.6	200
104	Vertical Scanning Interferometry: A New Method to Measure the Dissolution Dynamics of Cementitious Minerals. Journal of the American Ceramic Society, 2013, 96, 2766-2778.	1.9	33
105	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.	1.9	303
106	Rapid Elemental Extraction from Ordered and Disordered Solutes by Acoustically-Stimulated Dissolution. ACS Engineering Au, 0, , .	2.3	1
107	Rate controls on silicate dissolution in cementitious environments. RILEM Technical Letters, 0, 2, 67-73.	0.0	16