Carl R Wassgren

List of Publications by Year
in descending order

90 papers	3,711 citations	94433 37 h-index	138484 58 g-index
90 all docs	90 docs citations	90 times ranked	1885 citing authors

#	Article	IF	Citations
1	Predicting discharge dynamics from a rectangular hopper using the discrete element method (DEM). Chemical Engineering Science, 2008, 63, 5821-5830.	3.8	194
2	Predicting the flow mode from hoppers using the discrete element method. Powder Technology, 2009, 195, 1-10.	4.2	181
3	Granular segregation in discharging cylindrical hoppers: A discrete element and experimental study. Chemical Engineering Science, 2007, 62, 6423-6439.	3.8	139
4	Modeling granular segregation in flow from quasi-three-dimensional, wedge-shaped hoppers. Powder Technology, 2008, 179, 126-143.	4.2	133
5	A numerical study of granular shear flows of rod-like particles using the discrete element method. Journal of Fluid Mechanics, 2012, 713, 1-26.	3.4	127
6	Cage Instabilities in Cylindrical Roller Bearings. Journal of Tribology, 2004, 126, 681-689.	1.9	123
7	Cylindrical object contact detection for use in discrete element method simulations. Part I â€“ Contact detection algorithms. Chemical Engineering Science, 2010, 65, 5852-5862.	3.8	118
8	Force model considerations for glued-sphere discrete element method simulations. Chemical Engineering Science, 2009, 64, 3466-3475.	3.8	117
9	Predicting discharge dynamics of wet cohesive particles from a rectangular hopper using the discrete element method (DEM). Chemical Engineering Science, 2009, 64, 5268-5275.	3.8	116
10	Cylindrical object contact detection for use in discrete element method simulations, Part Iiâ€”Experimental validation. Chemical Engineering Science, 2010, 65, 5863-5871.	3.8	94
11	Granular shear flows of flat disks and elongated rods without and with friction. Physics of Fluids, 2013, 25, .	4.0	83
12	The damping performance of a single particle impact damper. Journal of Sound and Vibration, 2005, 286, 123-144.	3.9	80
13	Inter-tablet coating variability: Tablet residence time variability. Chemical Engineering Science, 2009, 64, 2705-2717.	3.8	73
14	Inter-tablet coating variability: Residence times in a horizontal pan coater. Chemical Engineering Science, 2008, 63, 2881-2894.	3.8	72
15	Simulation of a continuous granular mixer: Effect of operating conditions on flow and mixing. Chemical Engineering Science, 2009, 64, 2672-2682.	3.8	64
16	Computational Approaches for Studying the Granular Dynamics of Continuous Blending Processes, 1 â€“ DEM Based Methods. Macromolecular Materials and Engineering, 2011, 296, 290-307.	3.6	64
17	Using the discrete element method to predict collision-scale behavior: A sensitivity analysis. Chemical Engineering Science, 2009, 64, 3407-3416.	3.8	63
18	Validation and time step determination of discrete element modeling of flexible fibers. Powder Technology, 2013, 249, 386-395.	4.2	61

#	Article	IF	Citations
19	Incorporating particle flow information from discrete element simulations in population balance models of mixer-coaters. Chemical Engineering Science, 2011, 66, 3592-3604.	3.8	58
20	Quality by design for wet granulation in pharmaceutical processing: Assessing models for a priori design and scaling. Powder Technology, 2013, 240, 7-18.	4.2	57
21	Some computational considerations associated with discrete element modeling of cylindrical particles. Powder Technology, 2012, 228, 193-198.	4.2	56
22	Discrete element method modeling of bi-convex pharmaceutical tablets: Contact detection algorithms and validation. Chemical Engineering Science, 2012, 69, 587-601.	3.8	56
23	Numerical and experimental analysis of influence of granule microstructure on its compression breakage. Powder Technology, 2016, 299, 87-97.	4.2	56
24	Classifying the fluidization and segregation behavior of binary mixtures using particle size and density ratios. AICHE Journal, 2011, 57, 1446-1458.	3.6	55
25	Modeling the powder roll compaction process: Comparison of 2-D finite element method and the rolling theory for granular solids (Johanson's model). Powder Technology, 2012, 221, 90-100.	4.2	53
26	Computational study of granular shear flows of dry flexible fibres using the discrete elementÂmethod. Journal of Fluid Mechanics, 2015, 775, 24-52.	3.4	50
27	A study on the sensitivity of Druckerâ€“Prager Cap model parameters during the decompression phase of powder compaction simulations. Powder Technology, 2010, 198, 315-324.	4.2	45
28	Finite element analysis of pharmaceutical tablet compaction using a density dependent material plasticity model. Powder Technology, 2010, 202, 46-54.	4.2	45
29	Intra-tablet coating variability for several pharmaceutical tablet shapes. Chemical Engineering Science, 2011, 66, 2535-2544.	3.8	45
30	The effect of column diameter and bed height on minimum fluidization velocity. AICHE Journal, 2010, 56, 2304-2311.	3.6	44
31	Validation of 3-D finite element analysis for predicting the density distribution of roll compacted pharmaceutical powder. Powder Technology, 2013, 237, 386-399.	4.2	44
32	Comparisons of intra-tablet coating variability using DEM simulations, asymptotic limit models, and experiments. Chemical Engineering Science, 2015, 131, 197-212.	3.8	44
33	Determination of material and interaction properties of maize and wheat kernels for DEM simulation. Biosystems Engineering, 2020, 195, 208-226.	4.3	44
34	Stress results from two-dimensional granular shear flow simulations using various collision models. Physical Review E, 2005, 71, 061307.	2.1	41
35	Continuous blending of cohesive granular material. Chemical Engineering Science, 2010, 65, 5687-5698.	3.8	41
36	Intra-particle coating variability: Analysis and Monte-Carlo simulations. Chemical Engineering Science, 2010, 65, 1117-1124.	3.8	40

#	Article	IF	Citations
37	A general compartmentâ€based population balance model for particle coating and layered granulation. AICHE Journal, 2012, 58, 1397-1408.	3.6	38
38	Population Balance Model Validation and Predictionof CQAs for Continuous Milling Processes: toward QbDin Pharmaceutical Drug Product Manufacturing. Journal of Pharmaceutical Innovation, 2013, 8, 147-162.	2.4	38
39	DEMâ€“compartmentâ€“population balance model for particle coating in a horizontal rotating drum. Chemical Engineering Science, 2015, 125, 144-157.	3.8	33
40	Predicting breakage of high aspect ratio particles in an agitated bed using the Discrete Element Method. Chemical Engineering Science, 2017, 158, 314-327.	3.8	33
41	A bonded sphero-cylinder model for the discrete element simulation of elasto-plastic fibers. Chemical Engineering Science, 2018, 175, 118-129.	3.8	33
42	Dense granular flow â€" A collaborative study. Powder Technology, 2015, 284, 571-584.	4.2	32
43	A Review of Grain Kernel Damage: Mechanisms, Modeling, and Testing Procedures. Transactions of the ASABE, 2020, 63, 455-475.	1.1	32
44	Segregation of cohesive granular materials during discharge from a rectangular hopper. Granular Matter, 2010, 12, 193-200.	2.2	31
45	Measured damage resistance of corn and wheat kernels to compression, friction, and repeated impacts. Powder Technology, 2021, 380, 638-648.	4.2	30
46	Correlations for shear-induced percolation segregation in granular shear flows. Powder Technology, 2016, 288, 441-452.	4.2	29
47	Modifications to Johanson's roll compaction model for improved relative density predictions. Powder Technology, 2016, 297, 294-302.	4.2	28
48	Numerical simulation of dilute turbulent gasâ€particle flow with turbulence modulation. AICHE Journal, 2012, 58, 1381-1396.	3.6	27
49	An exact method for determining local solid fractions in discrete element method simulations. AICHE Journal, 2010, 56, 3036-3048.	3.6	26
50	The kinematics of non-cohesive, sphero-cylindrical particles in a low-speed, vertical axis mixer. Chemical Engineering Science, 2013, 101, 144-164.	3.8	25
51	Characterizing the powder punch-face adhesive interaction during the unloading phase of powder compaction. Powder Technology, 2017, 315, 410-421.	4.2	25
52	Effect of particle size on flow and mixing in a bladed granular mixer. AICHE Journal, 2015, 61, 46-57.	3.6	24
53	Calibration of Discrete-Element-Method Parameters for Cohesive Materials Using Dynamic-Yield-Strength and Shear-Cell Experiments. Processes, 2019, 7, 278.	2.8	23
54	The Application of Computational Modeling to Pharmaceutical Materials Science. MRS Bulletin, 2006, 31, 900-904.	3.5	22

#	Article	IF	Citations
55	Granule breakage in twin screw granulation: Effect of material properties and screw element geometry. Powder Technology, 2017, 315, 290-299.	4.2	21
56	A breakage kernel for use in population balance modelling of twin screw granulation. Powder Technology, 2020, 363, 525-540.	4.2	21
57	Modeling granular material blending in a rotating drum using a finite element method and advectionâ€diffusion equation multiscale model. AICHE Journal, 2018, 64, 3277-3292.	3.6	20
58	Modeling granular material segregation using a combined finite element method and advectionâ€“diffusionâ€“segregation equation model. Powder Technology, 2019, 346, 38-48.	4.2	19
59	Computational and Experimental Studies of Flexible Fiber Flows in a Normalâ€Stressâ€Fixed Shear Cell. AICHE Journal, 2019, 65, 64-74.	3.6	19
60	Investigation of the Variability of NIR In-line Monitoring of Roller Compaction Process by Using Fast Fourier Transform (FFT) Analysis. AAPS PharmSciTech, 2008, 9, 419-424.	3.3	18
61	Comparison of flow microdynamics for a continuous granular mixer with predictions from periodic slice DEM simulations. Powder Technology, 2012, 221, 325-336.	4.2	18
62	Granular shear flows of flexible rod-like particles. AIP Conference Proceedings, 2013, , .	0.4	18
63	The internal loads, moments, and stresses in rod-like particles in a low-speed, vertical axis mixer. Chemical Engineering Science, 2015, 134, 581-598.	3.8	18
64	Measuring granule phase volume distributions using X-ray microtomography. Powder Technology, 2014, 264, 550-560.	4.2	17
65	Multi-scale modeling of a spray coating process in a paddle mixer/coater: the effect of particle size distribution on particle segregation and coating uniformity. Chemical Engineering Science, 2013, 95, 203-210.	3.8	16
66	Discrete element methodâ€“computational fluid dynamics analyses of flexible fibre fluidization. Journal of Fluid Mechanics, 2021, 910, .	3.4	16
67	Modeling the Formation of Debossed Features on a Pharmaceutical Tablet. Journal of Pharmaceutical Innovation, 2016, 11, 214-230.	2.4	15
68	Influence of normal contact force model on simulations of spherocylindrical particles. AICHE Journal, 2018, 64, 1986-2001.	3.6	15
69	Discrete element simulation studies of angles of repose and shear flow of wet, flexible fibers. Soft Matter, 2018, 14, 2923-2937.	2.7	15
70	Granule transformation in a twin screw granulator: Effects of conveying, kneading, and distributive mixing elements. Powder Technology, 2019, 346, 363-372.	4.2	14
71	Tailored granule properties using 3D printed screw geometries in twin screw granulation. Powder Technology, 2019, 341, 75-84.	4.2	13
72	Modeling granular material blending in a Tote blender using a finite element method and advection-diffusion equation multi-scale model. Powder Technology, 2018, 340, 428-439.	4.2	11

#	Article	IF	Citations
73	Predicting the critical outlet width of a hopper using a continuum finite element method model. Powder Technology, 2019, 356, 649-660.	4.2	11
74	A perspective on calibration and application of DEM models for simulation of industrial bulk powder processes. Powder Technology, 2022, 402, 117301.	4.2	11
75	An Investigation on triaxial compression of flexible fiber packings. AICHE Journal, 2020, 66, e16946.	3.6	10
76	Discrete Element Method Investigation of Binary Granular Flows with Different Particle Shapes. Energies, 2020, 13, 1841.	3.1	9
77	Discrete element method models of elastic and elastoplastic fiber assemblies. AICHE Journal, 2021, 67, e17296.	3.6	8
78	Measurements of Grain Kernel Friction Coefficients Using a Reciprocating-Pin Tribometer. Transactions of the ASABE, 2020, 63, 675-685.	1.1	7
79	Experimental validation of a 2-D population balance model for spray coating processes. Chemical Engineering Science, 2013, 95, 360-365.	3.8	6
80	Quantitative comparison of experimental and Mohr-Coulomb finite element method simulation flow characteristics from quasi two-dimensional flat-bottomed bins. Powder Technology, 2020, 367, 689-702.	4.2	6
81	Inter-particle coating variability in a continuous coater. Chemical Engineering Science, 2014, 117, 1-7.	3.8	5
82	Experimental Study of Wet Cohesive Particles Discharging from a Rectangular Hopper. Industrial & Engineering Chemistry Research, 2015, 54, 4545-4551.	3.7	5
83	Scaling interâ€tablet coating variability in a horizontal rotating drum. AICHE Journal, 2017, 63, 3743-3755.	3.6	5
84	Disintegration and release kinetics of dry compacted urea composites: A formulation and process design study. EFB Bioeconomy Journal, 2021, 1, 100020.	2.4	5
85	Angular Circulation Speed of Tablets in a Vibratory Tablet Coating Pan. AAPS PharmSciTech, 2013, 14, 339-351.	3.3	4
86	Characteristics of multi-component formulation granules formed using distributive mixing elements in twin screw granulation. Drug Development and Industrial Pharmacy, 2018, 44, 1826-1837.	2.0	4
87	Breakage of wet flexible fiber agglomerates impacting a plane. AICHE Journal, 2019, 65, e16626.	3.6	3
88	Breakage modeling of needle-shaped particles using the discrete element method. Chemical Engineering Science: X, 2019, 3, 100027.	1.5	2
89	Size Segregation in Granular Beds Subject to Discrete and Continuous Vertical Oscillations. Materials Research Society Symposia Proceedings, 2000, 627, 1.	0.1	1
90	Impact of Squeezing on the Microstructure of Thermal Interface Materials. , 2021, , .		0