Ashim K Datta

List of Publications by Year
in descending order

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Version: 2024-02-01

102 papers	5,347 citations	76294 40 h-index	95218 68 g-index
118 all docs	118 docs citations	118 times ranked	3141 citing authors

#	Article	IF	Citations
1	Porous media approaches to studying simultaneous heat and mass transfer in food processes. I: Problem formulations. Journal of Food Engineering, 2007, 80, 80-95.	2.7	372
2	Modeling the heating uniformity contributed by a rotating turntable in microwave ovens. Journal of Food Engineering, 2007, 82, 359-368.	2.7	255
3	Moisture transport in intensive microwave heating of biomaterials: a multiphase porous media model. International Journal of Heat and Mass Transfer, 1999, 42, 1501-1512.	2.5	202
4	Porous media approaches to studying simultaneous heat and mass transfer in food processes. II: Property data and representative results. Journal of Food Engineering, 2007, 80, 96-110.	2.7	202
5	Handbook of Microwave Technology for Food Application. , 0, , .		172
6	Infrared and hot-air-assisted microwave heating of foods for control of surface moisture. Journal of Food Engineering, 2002, 51, 355-364.	2.7	156
7	Multiscale modeling in food engineering. Journal of Food Engineering, 2013, 114, 279-291.	2.7	141
8	Mechanistic understanding of case-hardening and texture development during drying of food materials. Journal of Food Engineering, 2015, 166, 119-138.	2.7	138
9	Perspectives from CO+RE: How COVID-19 changed our food systems and food security paradigms. Current Research in Food Science, 2020, 3, 166-172.	2.7	134
10	Mathematical modeling of bread baking process. Journal of Food Engineering, 2006, 75, 78-89.	2.7	132
11	An Improved, Easily Implementable, Porous Media Based Model for Deep-Fat Frying. Food and Bioproducts Processing, 2007, 85, 209-219.	1.8	131
12	Modeling Transport in Porous Media With Phase Change: Applications to Food Processing. Journal of Heat Transfer, 2011, 133, .	1.2	99
13	Digital twins of food process operations: the next step for food process models?. Current Opinion in Food Science, 2020, 35, 79-87.	4.1	88
14	Porous media characterization of breads baked using novel heating modes. Journal of Food Engineering, 2007, 79, 106-116.	2.7	86
15	Principles of Microwave Combination Heating. Comprehensive Reviews in Food Science and Food Safety, 2013, 12, 24-39.	5.9	83
16	Moisture, Oil and Energy Transport During Deep-Fat Frying of Food Materials. Food and Bioproducts Processing, 1999, 77, 194-204.	1.8	82
17	Enabling computer-aided food process engineering: Property estimation equations for transport phenomena-based models. Journal of Food Engineering, 2013, 116, 483-504.	2.7	72
18	Transport in deformable food materials: A poromechanics approach. Chemical Engineering Science, 2011, 66, 6482-6497.	1.9	70

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19	Coupled electromagnetics, multiphase transport and large deformation model for microwave drying. Chemical Engineering Science, 2016, 156, 206-228.	1.9	70
20	Computation of airflow effects on heat and mass transfer in a microwave oven. Journal of Food Engineering, 2003, 59, 181-190.	2.7	69
21	Microwave drying of spheres: Coupled electromagnetics-multiphase transport modeling with experimentation. Part I: Model development and experimental methodology. Food and Bioproducts Processing, 2015, 96, 314-325.	1.8	69
22	Biological and Bioenvironmental Heat and Mass Transfer. , 0, , .		63
23	Microwave puffing: Determination of optimal conditions using a coupled multiphase porous media â€" Large deformation model. Journal of Food Engineering, 2011, 107, 152-163.	2.7	62
24	Transport and related properties of breads baked using various heating modes. Journal of Food Engineering, 2007, 78, 1382-1387.	2.7	59
25	Implications of different degrees of arytenoid cartilage abduction on equine upper airway characteristics. Equine Veterinary Journal, 2008, 40, 629-635.	0.9	59
26	Quantitative understanding of Refractance Windowâ„¢ drying. Food and Bioproducts Processing, 2015, 95, 237-253.	1.8	59
27	Toward computer-aided food engineering: Mechanistic frameworks for evolution of product, quality and safety during processing. Journal of Food Engineering, 2016, 176, 9-27.	2.7	59
28	Porous media based model for deep-fat vacuum frying potato chips. Journal of Food Engineering, 2012, 110, 428-440.	2.7	56
29	Electromagnetics, heat transfer, and thermokinetics in microwave sterilization. AICHE Journal, 2001, 47, 1957-1968.	1.8	55
30	Mass production of shaped particles through vortex ring freezing. Nature Communications, 2016, 7, 12401.	5.8	55
31	Coupled multiphase transport, large deformation and phase transition during rice puffing. Chemical Engineering Science, 2016, 139, 75-98.	1.9	55
32	Error estimates for approximate kinetic parameters used in food literature. Journal of Food Engineering, 1993, 18, 181-199.	2.7	54
33	An Improved, Easily Implementable, Porous Media Based Model for Deep-Fat Frying. Food and Bioproducts Processing, 2007, 85, 220-230.	1.8	52
34	HEAT AND MOISTURE TRANSFER IN BAKING OF POTATO SLABS. Drying Technology, 1999, 17, 2069-2092.	1.7	50
35	Microwave Power Absorption in Single - and Multiple - Item Foods. Food and Bioproducts Processing, 2003, 81, 257-265.	1.8	49
36	Fuzzy finite element analysis of heat conduction problems with uncertain parameters. Journal of Food Engineering, 2011, 103, 38-46.	2.7	49

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37	Surface heat and mass transfer coefficients for multiphase porous media transport models with rapid evaporation. Food and Bioproducts Processing, 2012, 90, 475-490.	1.8	49
38	Microwave drying of spheres: Coupled electromagnetics-multiphase transport modeling with experimentation. Part II: Model validation and simulation results. Food and Bioproducts Processing, 2015, 96, 326-337.	1.8	48
39	Hydraulic Permeability of Food Tissues. International Journal of Food Properties, 2006, 9, 767-780.	1.3	43
40	Status of Physicsâ€Based Models in the Design of Food Products, Processes, and Equipment. Comprehensive Reviews in Food Science and Food Safety, 2008, 7, 121-129.	5.9	43
41	Thermal Stresses From Large Volumetric Expansion During Freezing of Biomaterials. Journal of Biomechanical Engineering, 1998, 120, 720-726.	0.6	41
42	Multiphase and multicomponent transport with phase change during meat cooking. Journal of Food Engineering, 2012, 113, 299-309.	2.7	41
43	Texture prediction during deep frying: A mechanistic approach. Journal of Food Engineering, 2012, 108, 111-121.	2.7	38
44	Simulation of heat transfer to a canned corn starch dispersion subjected to axial rotation. Chemical Engineering and Processing: Process Intensification, 2001, 40, 391-399.	1.8	37
45	Uncertainty in Thermal Process Calculations due to Variability in First-Order and Weibull Kinetic Parameters. Journal of Food Science, 2007, 72, E155-E167.	1.5	37
46	A multiphase porous medium transport model with distributed sublimation front to simulate vacuum freeze drying. Food and Bioproducts Processing, 2015, 94, 637-648.	1.8	37
47	Modeling radio frequency heating of granular foods: Individual particle vs. effective property approach. Journal of Food Engineering, 2018, 234, 24-40.	2.7	37
48	MOISTURE LOSS AS RELATED TO HEATING UNIFORMITY IN MICROWAVE PROCESSING OF SOLID FOODS. Journal of Food Process Engineering, 1999, 22, 367-382.	1.5	36
49	Transport in deformable hygroscopic porous media during microwave puffing. AICHE Journal, 2013, 59, 33-45.	1.8	36
50	Susceptors in microwave cavity heating: Modeling and experimentation with a frozen pie. Journal of Food Engineering, 2017, 195, 191-205.	2.7	36
51	Influence of the Dielectric Property on Microwave Oven Heating Patterns: Application to Food Materials. Journal of Microwave Power and Electromagnetic Energy, 1997, 32, 3-15.	0.4	34
52	Development of equine upper airway fluid mechanics model for Thoroughbred racehorses. Equine Veterinary Journal, 2008, 40, 272-279.	0.9	34
53	Computation of mass transport properties of apple and rice from X-ray microtomography images. Innovative Food Science and Emerging Technologies, 2014, 24, 14-27.	2.7	34
54	Interdisciplinary engineering approaches to study how pathogenic bacteria interact with fresh produce. Journal of Food Engineering, 2013, 114, 426-448.	2.7	33

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55	An inverse-breathing encapsulation system for cell delivery. Science Advances, 2021, 7, .	4.7	33
56	THERMAL FRACTURE IN A BIOMATERIAL DURING RAPID FREEZING. Journal of Thermal Stresses, 1999, 22, 275-292.	1.1	32
57	Heating Concentrations of Microwaves in Spherical and Cylindrical Foods. Food and Bioproducts Processing, 2005, 83, 14-24.	1.8	31
58	Hotâ€air drying of whole fruit Chinese jujube (<i>Zizyphus jujuba</i> Miller): physicochemical properties of dried products. International Journal of Food Science and Technology, 2009, 44, 1415-1421.	1.3	30
59	Thawing in a microwave cavity: Comprehensive understanding of inverter and cycled heating. Journal of Food Engineering, 2016, 180, 87-100.	2.7	29
60	A user-friendly general-purpose predictive software package for food safety. Journal of Food Engineering, 2011, 104, 173-185.	2.7	27
61	Soft matter approaches as enablers for food macroscale simulation. Faraday Discussions, 2012, 158, 435.	1.6	27
62	Heating effects of clock drivers in bulk, SOI, and 3-D CMOS. IEEE Electron Device Letters, 2002, 23, 716-718.	2.2	26
63	Heat transfer to a canned corn starch dispersion under intermittent agitation. Journal of Food Engineering, 2002, 54, 321-329.	2.7	26
64	Understanding puffing in a domestic microwave oven. Journal of Food Process Engineering, 2020, 43, e13429.	1.5	25
65	Pressure-driven infiltration of water and bacteria into plant leaves during vacuum cooling: A mechanistic model. Journal of Food Engineering, 2019, 246, 209-223.	2.7	23
66	Computational model predicts effective delivery of 188-Re-labeled melanin-binding antibody to metastatic melanoma tumors with wide range of melanin concentrations. Melanoma Research, 2007, 17, 291-303.	0.6	22
67	Penetration of aerobic bacteria into meat: A mechanistic understanding. Journal of Food Engineering, 2017, 196, 193-207.	2.7	22
68	Quality and safety driven optimal operation of deep-fat frying of potato chips. Journal of Food Engineering, 2013, 119, 125-134.	2.7	21
69	Status of food process modeling and where do we go from here (Synthesis of the outcome from) Tj ETQq1 1 0.784314 rgBT /Overlock 1	5.9	19
70	Simulation of Turbulent Airflow Using a CT Based Upper Airway Model of a Racehorse. Journal of Biomechanical Engineering, 2008, 130, 031011.	0.6	19
71	A Model for Flow and Deformation in Unsaturated Swelling Porous Media. Transport in Porous Media, 2010, 84, 335-369.	1.2	19
72	Retention and infiltration of bacteria on a plant leaf driven by surface water evaporation. Physics of Fluids, 2019, 31, .	1.6	19

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73	Heat Transfer to Three Canned Fluids of Different Thermo-Rheological Behaviour Under Intermittent Agitation. Food and Bioproducts Processing, 2002, 80, 20-27.	1.8	17
74	Development of Associations and Kinetic Models for Microbiological Data to Be Used in Comprehensive Food Safety Prediction Software. Journal of Food Science, 2010, 75, R107-20.	1.5	17
75	Modeling moisture migration in a multi-domain food system: Application to storage of a sandwich system. Food Research International, 2015, 76, 427-438.	2.9	17
76	Heating Concentrations of Microwaves in Spherical and Cylindrical Foods. Food and Bioproducts Processing, 2005, 83, 6-13.	1.8	15
77	Finite-Element Model of Interaction between Fungal Polysaccharide and Monoclonal Antibody in the Capsule of Cryptococcus neoformans. Journal of Physical Chemistry B, 2008, 112, 8514-8522.	1.2	15
78	Food as porous media: a review of the dynamics of porous properties during processing. Food Reviews International, 2022, 38, 953-985.	4.3	15
79	Mathematical modeling of biochemical changes during processing of liquid foods and solutions. Biotechnology Progress, 1991, 7, 397-402.	1.3	14
80	Mechanistic understanding of temperature-driven water and bacterial infiltration during hydrocooling of fresh produce. Postharvest Biology and Technology, 2016, 118, 159-174.	2.9	14
81	Engineering modeling frameworks for microbial food safety at various scales. Comprehensive Reviews in Food Science and Food Safety, 2021, 20, 4213-4249.	5.9	14
82	Modeling of Multiphase Transport during Drying of Honeycomb Ceramic Substrates. Drying Technology, 2012, 30, 607-618.	1.7	13
83	Numerical analysis of heat and mass transfers during intermittent microwave drying of Chinese jujube (Zizyphus jujuba Miller). Food and Bioproducts Processing, 2021, 129, 10-23.	1.8	13
84	Predictive Thermal Inactivation Model for Effects and Interactions of Temperature, NaCl, Sodium Pyrophosphate, and Sodium Lactate on Listeria monocytogenes in Ground Beef. Food and Bioprocess Technology, 2014, 7, 437-446.	2.6	12
85	Simulation as an integrator in an undergraduate biological engineering curriculum. Computer Applications in Engineering Education, 2013, 21, 717-727.	2.2	11
86	Mechanistic understanding of non-spherical bacterial attachment and deposition on plant surface structures. Chemical Engineering Science, 2017, 160, 396-418.	1.9	11
87	Mechanistic modeling of light-induced chemotactic infiltration of bacteria into leaf stomata. PLoS Computational Biology, 2020, 16, e1007841.	1.5	10
88	Estimating permeability and porosity of plant tissues: Evolution from raw to the processed states of potato. Journal of Food Engineering, 2020, 277, 109912.	2.7	9
89	Prediction of effective moisture diffusivity in plant tissue food materials over extended moisture range. Drying Technology, 2020, 38, 2202-2216.	1.7	7
90	A Mechanistic Model for Bacterial Retention and Infiltration on a Leaf Surface during a Sessile Droplet Evaporation. Langmuir, 2020, 36, 12130-12142.	1.6	7

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91	Mechanistic understanding of microwave-vacuum drying of non-deformable porous media. Drying Technology, 2021, 39, 850-867.	1.7	6
92	Simulationâ€based enhancement of learning: The case of food safety. Journal of Food Science Education, 2020, 19, 192-211.	1.0	5
93	Engineering puffed rice. Physics Today, 2018, 71, 66-67.	0.3	4
94	Selective heating and enhanced boiling in microwave heating of multicomponent (solidâ€“liquid) foods. Journal of Food Process Engineering, 2020, 43, e13320.	1.5	4
95	Factors affecting contamination and infiltration of Escherichia coli K12 into spinach leaves during vacuum cooling. Journal of Food Engineering, 2021, 311, 110735.	2.7	4
96	Experimental and Analytical Temperature Distributions during Oven-Based Convection Heating. Journal of Food Science, 2010, 75, E66-E72.	1.5	3
97	Modeling food process, quality and safety: Frameworks and practical aspects. Procedia Food Science, 2011, 1, 1202-1208.	0.6	2
98	Mathematical modelingâ€"Computer-aided food engineering. , 2022, , 277-290.		2
99	Computation of Airflow Effects in Microwave and Combination Heating. Contemporary Food Engineering, 2007, , 313-330.	0.2	0
100	Food Processing and Preservation: Microwave. , 2010, , 550-556.		0
101	Modeling Food Process, Quality and Safety: Frameworks and Challenges. Food Engineering Series, 2013, , 459-471.	0.3	0
102	10.1063/1.5126127.5. , 2019, , .		0