Abba B Gumel

List of Publications by Year
in descending order

131 papers	6,887 citations	66343 42 h-index	74163 75 g-index
142 all docs	142 docs citations	142 times ranked	5478 citing authors

#	Article	IF	Citations
1	To mask or not to mask: Modeling the potential for face mask use by the general public to curtail the COVID-19 pandemic. Infectious Disease Modelling, 2020, 5, 293-308.	1.9	911
2	Mathematical assessment of the impact of non-pharmaceutical interventions on curtailing the 2019 novel Coronavirus. Mathematical Biosciences, 2020, 325, 108364.	1.9	438
3	Modelling strategies for controlling SARS outbreaks. Proceedings of the Royal Society B: Biological Sciences, 2004, 271, 2223-2232.	2.6	304
4	Backward bifurcations in dengue transmission dynamics. Mathematical Biosciences, 2008, 215, 11-25.	1.9	248
5	A mathematical model for assessing control strategies against West Nile virus. Bulletin of Mathematical Biology, 2005, 67, 1107-1133.	1.9	236
6	Climate, environmental and socio-economic change: weighing up the balance in vector-borne disease transmission. Philosophical Transactions of the Royal Society B: Biological Sciences, 2015, 370, 20130551.	4.0	215
7	Causes of backward bifurcations in some epidemiological models. Journal of Mathematical Analysis and Applications, 2012, 395, 355-365.	1.0	161
8	Mathematical analysis of the transmission dynamics of HIV/TB coinfection in the presence of treatment. Mathematical Biosciences and Engineering, 2008, 5, 145-174.	1.9	153
9	Will an imperfect vaccine curtail the COVID-19 pandemic in the U.S.?. Infectious Disease Modelling, 2020, 5, 510-524.	1.9	148
10	Curtailing smoking dynamics: A mathematical modeling approach. Applied Mathematics and Computation, 2008, 195, 475-499.	2.2	143
11	A Vaccination Model for Transmission Dynamics of Influenza. SIAM Journal on Applied Dynamical Systems, 2004, 3, 503-524.	1.6	133
12	Backward Bifurcation and Optimal Control in Transmission Dynamics of West Nile Virus. Bulletin of Mathematical Biology, 2010, 72, 1006-1028.	1.9	133
13	When Is Quarantine a Useful Control Strategy for Emerging Infectious Diseases?. American Journal of Epidemiology, 2006, 163, 479-485.	3.4	127
14	Role of incidence function in vaccine-induced backward bifurcation in some HIV models. Mathematical Biosciences, 2007, 210, 436-463.	1.9	127
15	Mathematical analysis of a model for HIV-malaria co-infection. Mathematical Biosciences and Engineering, 2009, 6, 333-362.	1.9	113
16	A primer on using mathematics to understand COVID-19 dynamics: Modeling, analysis and simulations. Infectious Disease Modelling, 2021, 6, 148-168.	1.9	98
17	Assessing the role of basic control measures, antivirals and vaccine in curtailing pandemic influenza: scenarios for the US, UK and the Netherlands. Journal of the Royal Society Interface, 2007, 4, 505-521.	3.4	94
18	Theoretical Assessment of Public Health Impact of Imperfect Prophylactic HIV-1 Vaccines with Therapeutic Benefits. Bulletin of Mathematical Biology, 2006, 68, 577-614.	1.9	93

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19	Could masks curtail the post-lockdown resurgence of COVID-19 in the US?. Mathematical Biosciences, 2020, 329, 108452.	1.9	93
20	Mathematical modeling of climate change and malaria transmission dynamics: a historical review. Journal of Mathematical Biology, 2018, 77, 857-933.	1.9	84
21	A second-order scheme for the â€œBrusselatorâ€•reactionâ€“diffusion system. Journal of Mathematical Chemistry, 1999, 26, 297-316.	1.5	80
22	Mathematical analysis of the role of repeated exposure on malaria transmission dynamics. Differential Equations and Dynamical Systems, 2008, 16, 251-287.	1.0	71
23	Analysis of a temperature- and rainfall-dependent model for malaria transmission dynamics. Mathematical Biosciences, 2017, 287, 72-92.	1.9	70
24	Mathematical Study of a Staged-Progression HIV Model with Imperfect Vaccine. Bulletin of Mathematical Biology, 2006, 68, 2105-2128.	1.9	68
25	Using multiple data features improved the validity of osteoporosis case ascertainment from administrative databases. Journal of Clinical Epidemiology, 2008, 61, 1250-1260.	5.0	66
26	A qualitative study of a vaccination model with non-linear incidence. Applied Mathematics and Computation, 2003, 143, 409-419.	2.2	65
27	Qualitative study of transmission dynamics of drug-resistant malaria. Mathematical and Computer Modelling, 2009, 50, 611-630.	2.0	60
28	Global dynamics of a two-strain avian influenza model. International Journal of Computer Mathematics, 2009, 86, 85-108.	1.8	58
29	Sensitivity and uncertainty analyses for a SARS model with time-varying inputs and outputs. Mathematical Biosciences and Engineering, 2006, 3, 527-544.	1.9	57
30	Mathematical assessment of the effect of traditional beliefs and customs on the transmission dynamics of the 2014 Ebola outbreaks. BMC Medicine, 2015, 13, 96.	5.5	56
31	Mathematical modeling and analysis of COVID-19 pandemic in Nigeria. Mathematical Biosciences and Engineering, 2020, 17, 7193-7221.	1.9	56
32	Influenza epidemiologyâ€"past, present, and future. Critical Care Medicine, 2010, 38, e1-e9.	0.9	55
33	Modeling the impact of quarantine during an outbreak of Ebola virus disease. Infectious Disease Modelling, 2019, 4, 12-27.	1.9	55
34	A Positivity-preserving Mickens-type Discretization of an Epidemic Model. Journal of Difference Equations and Applications, 2003, 9, 1037-1051.	1.1	50
35	Global stability of a two-stage epidemic model with generalized non-linear incidence. Mathematics and Computers in Simulation, 2002, 60, 107-118.	4.4	49
36	A mathematical model for the dynamics of HIV-1 during the typical course of infection. Nonlinear Analysis: Theory, Methods & Applications, 2001, 47, 1773-1783.	1.1	48

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37	Mathematical analysis of a disease transmission model with quarantine, isolation and an imperfect vaccine. Computers and Mathematics With Applications, 2011, 61, 3044-3070.	2.7	48
38	Second-order,L 0-stable methods for the heat equation with time-dependent boundary conditions. Advances in Computational Mathematics, 1996, 6, 333-352.	1.6	47
39	Re-infection-induced backward bifurcation in the transmission dynamics of Chlamydia trachomatis. Journal of Mathematical Analysis and Applications, 2009, 356, 96-118.	1.0	47
40	A mathematical study of a model for childhood diseases with non-permanent immunity. Journal of Computational and Applied Mathematics, 2003, 157, 347-363.	2.0	46
41	Mathematical analysis of an age-structured model for malaria transmission dynamics. Mathematical Biosciences, 2014, 247, 80-94.	1.9	46
42	Toward Achieving a Vaccine-Derived Herd Immunity Threshold for COVID-19 in the U.S.. Frontiers in Public Health, 2021, 9, 709369.	2.7	46
43	Mathematical assessment of the role of temperature and rainfall on mosquito population dynamics. Journal of Mathematical Biology, 2017, 74, 1351-1395.	1.9	45
44	QUALITATIVE ASSESSMENT OF THE ROLE OF TEMPERATURE VARIATIONS ON MALARIA TRANSMISSION DYNAMICS. Journal of Biological Systems, 2015, 23, 1550030.	1.4	43
45	Global asymptotic properties of an SEIRS model with multiple infectious stages. Journal of Mathematical Analysis and Applications, 2010, 366, 202-217.	1.0	39
46	Analyzing the dynamics of an SIRS vaccination model with waning natural and vaccine-induced immunity. Nonlinear Analysis: Real World Applications, 2011, 12, 2692-2705.	1.7	38
47	An unconditionally convergent finite-difference scheme for the SIR model. Applied Mathematics and Computation, 2003, 146, 611-625.	2.2	37
48	Mathematical Study of the Role of Gametocytes andÂanÂImperfect Vaccine on Malaria Transmission Dynamics. Bulletin of Mathematical Biology, 2010, 72, 63-93.	1.9	37
49	Dynamically-consistent non-standard finite difference method for an epidemic model. Mathematical and Computer Modelling, 2011, 53, 131-150.	2.0	36
50	Protecting residential care facilities from pandemic influenza. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 10625-10630.	7.1	35
51	Converging and emerging threats to health security. Environment Systems and Decisions, 2018, 38, 198-207.	3.4	33
52	Existence of multiple-stable equilibria for a multi-drug-resistant model of mycobacterium tuberculosis. Mathematical Biosciences and Engineering, 2008, 5, 437-455.	1.9	33
53	Dynamical analysis of a multi-strain model of HIV in the presence of anti-retroviral drugs. Journal of Biological Dynamics, 2008, 2, 323-345.	1.7	31
54	Global asymptotic dynamics of a model for quarantine and isolation. Discrete and Continuous Dynamical Systems - Series B, 2010, 14, 209-231.	0.9	30

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55	Could Condoms Stop the AIDS Epidemic?. Journal of Theoretical Medicine, 2003, 5, 171-181.	0.5	29
56	Effect of cross-immunity on the transmission dynamics of two strains of dengue. International Journal of Computer Mathematics, 2010, 87, 2361-2384.	1.8	29
57	Modelling the Transmission Dynamics and Control ofÂtheÂNovel 2009 Swine Influenza (H1N1) Pandemic. Bulletin of Mathematical Biology, 2011, 73, 515-548.	1.9	28
58	Emergency department and â€˜Google flu trendsâ€™ data as syndromic surveillance indicators for seasonal influenza. Epidemiology and Infection, 2014, 142, 2397-2405.	2.1	28
59	The effect of incidence functions on the dynamics of a quarantine/isolation model with time delay. Nonlinear Analysis: Real World Applications, 2011, 12, 215-235.	1.7	27
60	Effect of a preventive vaccine on the dynamics of HIV transmission. Communications in Nonlinear Science and Numerical Simulation, 2004, 9, 649-659.	3.3	26
61	Dynamics of a model with quarantine-adjusted incidence and quarantine of susceptible individuals. Journal of Mathematical Analysis and Applications, 2013, 399, 565-575.	1.0	26
62	Qualitative assessment of the role of public health education program on HIV transmission dynamics. Mathematical Medicine and Biology, 2011, 28, 245-270.	1.2	25
63	Weather-driven malaria transmission model with gonotrophic and sporogonic cycles. Journal of Biological Dynamics, 2019, 13, 288-324.	1.7	25
64	Mathematical assessment of the role of non-linear birth and maturation delay in the population dynamics of the malaria vector. Applied Mathematics and Computation, 2010, 217, 3286-3313.	2.2	24
65	Threshold dynamics of a non-autonomous SEIRS model with quarantine and isolation. Theory in Biosciences, 2012, 131, 19-30.	1.4	24
66	Will vaccine-derived protective immunity curtail COVID-19 variants in the US?. Infectious Disease Modelling, 2021, 6, 1110-1134.	1.9	24
67	The impact of an imperfect vaccine and pap cytologyscreening on the transmission of human papillomavirus and occurrenceof associated cervical dysplasia and cancer. Mathematical Biosciences and Engineering, 2013, 10, 1173-1205.	1.9	24
68	Qualitative dynamics of a vaccination model for HSV-2. IMA Journal of Applied Mathematics, 2010, 75, 75-107.	1.6	22
69	Qualitative study of a quarantine/isolation model with multiple disease stages. Applied Mathematics and Computation, 2011, 218, 1941-1961.	2.2	22
70	Efficient parallel algorithm for the two-dimensional diffusion equation subject to specification of mass. International Journal of Computer Mathematics, 1997, 64, 153-163.	1.8	21
71	Cross-immunity-induced backward bifurcation for a model of transmission dynamics of two strains of influenza. Nonlinear Analysis: Real World Applications, 2013, 14, 1384-1403.	1.7	20
72	Immune Response and Imperfect Vaccine in Malaria Dynamics. Mathematical Population Studies, 2011, 18, 55-86.	2.2	19

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73	Mathematical analysis of a model for AVLâ€“HIV co-endemicity. Mathematical Biosciences, 2016, 271, 80-95.	1.9	19
74	THE â€œUNHOLYâ€•CHIKUNGUNYAâ€“DENGUEâ€“ZIKA TRINITY: A THEORETICAL ANALYSIS. Journal of Biological Systems, 2017, 25, 545-585.	1.4	19
75	Mathematics of an epidemiology-genetics model for assessing the role of insecticides resistance on malaria transmission dynamics. Mathematical Biosciences, 2019, 312, 33-49.	1.9	19
76	Assessing the impact of widespread respirator use in curtailing COVID-19 transmission in the USA. Royal Society Open Science, 2021, 8, 210699.	2.4	19
77	Qualitative analysis of an age-structured SEIR epidemic model with treatment. Applied Mathematics and Computation, 2013, 219, 10627-10642.	2.2	18
78	Dynamics Analysis of a Multi-strain Cholera Model with an Imperfect Vaccine. Bulletin of Mathematical Biology, 2013, 75, 1104-1137.	1.9	18
79	Mathematics of a sexâ€structured model for syphilis transmission dynamics. Mathematical Methods in the Applied Sciences, 2018, 41, 8488-8513.	2.3	18
80	Mathematical assessment of the role of Dengvaxia vaccine on the transmission dynamics of dengue serotypes. Mathematical Biosciences, 2018, 304, 25-47.	1.9	18
81	BIFURCATION AND STABILITY ANALYSES FOR A COUPLED BRUSSELATOR MODEL. Journal of Sound and Vibration, 2001, 244, 795-820.	3.9	17
82	Dynamical and numerical analyses of a generalized food-chain model. Applied Mathematics and Computation, 2003, 142, 35-49.	2.2	17
83	Qualitative dynamics of lowly- and highly-pathogenic avian influenza strains. Mathematical Biosciences, 2013, 243, 147-162.	1.9	17
84	Mathematical analysis of a model for zoonotic visceral leishmaniasis. Infectious Disease Modelling, 2017, 2, 455-474.	1.9	17
85	Mathematical analysis of a model for the transmission dynamics of bovine tuberculosis. Mathematical Methods in the Applied Sciences, 2011, 34, 1873-1887.	2.3	16
86	Mathematics of dengue transmission dynamics: Roles of vector vertical transmission and temperature fluctuations. Infectious Disease Modelling, 2018, 3, 266-292.	1.9	16
87	Vaccination and herd immunity thresholds in heterogeneous populations. Journal of Mathematical Biology, 2021, 83, 73.	1.9	16
88	A New Mathematical Model for Assessing Therapeutic Strategies for HIV Infection. Journal of Theoretical Medicine, 2002, 4, 147-155.	0.5	15
89	Analysis of Risk-Structured Vaccination Model for the Dynamics of Oncogenic and Warts-Causing HPV Types. Bulletin of Mathematical Biology, 2014, 76, 1670-1726.	1.9	15
90	Mathematical assessment of the role of pre-exposure prophylaxis on HIV transmission dynamics. Applied Mathematics and Computation, 2017, 293, 168-193.	2.2	15

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91	To Cut or Not to Cut: A Modeling Approach for Assessing the Role of Male Circumcision in HIV Control. Bulletin of Mathematical Biology, 2007, 69, 2447-2466.	1.9	14
92	Dynamics of an age-structured two-strain model for malaria transmission. Applied Mathematics and Computation, 2015, 250, 860-886.	2.2	14
93	Theoretical assessment of avian influenza vaccine. Discrete and Continuous Dynamical Systems - Series B, 2010, 13, 1-25.	0.9	13
94	Switching from exact scheme to nonstandard finite difference scheme for linear delay differential equation. Applied Mathematics and Computation, 2015, 258, 388-403.	2.2	12
95	Mathematical Assessment of Canadaâ€™s Pandemic Influenza Preparedness Plan. Canadian Journal of Infectious Diseases and Medical Microbiology, 2008, 19, 185-192.	1.9	11
96	Mathematical assessment of the role of vector insecticide resistance and feeding/resting behavior on malaria transmission dynamics: Optimal control analysis. Infectious Disease Modelling, 2018, 3, 301-321.	1.9	11
97	Dynamics of COVID-19 pandemic in India and Pakistan: A metapopulation modelling approach. Infectious Disease Modelling, 2021, 6, 1173-1201.	1.9	11
98	A sequential algorithm for the non-linear dual-sorption model of percutaneous drug absorption. Mathematical Biosciences, 1998, 152, 87-103.	1.9	10
99	Mathematical study of a risk-structured two-group model for Chlamydia transmission dynamics. Applied Mathematical Modelling, 2011, 35, 3653-3673.	4.2	10
100	Dynamical analysis of a sex-structured Chlamydia trachomatis transmission model with time delay. Nonlinear Analysis: Real World Applications, 2011, 12, 837-866.	1.7	10
101	Dynamics analysis of a quarantine model in two patches. Mathematical Methods in the Applied Sciences, 2015, 38, 349-364.	2.3	10
102	Mathematical analysis of a weather-driven model for the population ecology of mosquitoes. Mathematical Biosciences and Engineering, 2017, 15, 57-93.	1.9	10
103	A competitive numerical method for a chemotherapy model of two HIV subtypes. Applied Mathematics and Computation, 2002, 131, 329-337.	2.2	9
104	MATHEMATICAL STUDY OF THE IMPACT OF QUARANTINE, ISOLATION AND VACCINATION IN CURTAILING AN EPIDEMIC. Journal of Biological Systems, 2007, 15, 185-202.	1.4	9
105	The evolutionary consequences of vaccination. Vaccine, 2008, 26, C1-C3.	3.8	9
106	Dynamics of a two-strain vaccination model for polio. Nonlinear Analysis: Real World Applications, 2015, 25, 167-189.	1.7	9
107	Long-lasting insecticidal nets and the quest for malaria eradication: a mathematical modeling approach. Journal of Mathematical Biology, 2020, 81, 113-158.	1.9	9
108	Numerical modelling of the perturbation of HIV-1 during combination anti-retroviral therapy. Computers in Biology and Medicine, 2001, 31, 287-301.	7.0	8

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109	DYNAMICS ANALYSIS OF A VACCINATION MODEL FOR HPV TRANSMISSION. Journal of Biological Systems, 2014, 22, 555-599.	1.4	8
110	Insecticide resistance and malaria control: A genetics-epidemiology modeling approach. Mathematical Biosciences, 2020, 325, 108368.	1.9	8
111	Numerical and bifurcation analyses for a population model of HIV chemotherapy. Mathematics and Computers in Simulation, 2000, 54, 169-181.	4.4	7
112	Differential characteristics of primary infection and re-infection can cause backward bifurcation in HCV transmission dynamics. Mathematical Biosciences, 2015, 263, 51-69.	1.9	7
113	Qualitative analysis of an age- and sex-structured vaccination model for human papillomavirus. Discrete and Continuous Dynamical Systems - Series B, 2013, 18, 2151-2174.	0.9	7
114	A boundary integral method for the three-dimensional heat equation subject to specification of energy. Journal of Computational and Applied Mathematics, 2001, 135, 303-311.	2.0	6
115	Exogenous re-infection does not always cause backward bifurcation in TB transmission dynamics. Applied Mathematics and Computation, 2017, 298, 322-335.	2.2	6
116	Dynamics of a two-sex model for the population ecology of dengue mosquitoes in the presence of Wolbachia. Mathematical Biosciences, 2020, 328, 108426.	1.9	6
117	HIV control in vivo: Dynamical analysis. Communications in Nonlinear Science and Numerical Simulation, 2004, 9, 561-568.	3.3	5
118	Comments on â€œA Mathematical Study to Control Visceral Leishmaniasis: An Application to South Sudanâ€. Bulletin of Mathematical Biology, 2018, 80, 825-839.	1.9	5
119	THE COMPUTATION OF REPRODUCTION NUMBERS FOR THE ENVIRONMENT-HOST-ENVIRONMENT CHOLERA TRANSMISSION DYNAMICS. Journal of Biological Systems, 2020, 28, 183-231.	1.4	5
120	A Non-Standard Finite-Difference Scheme for a Model of HIV Transmission and Control. Journal of Computational Methods in Sciences and Engineering, 2003, 3, 91-98.	0.2	3
121	Effect of pathogen-resistant vectors on the transmission dynamics of a vector-borne disease. Journal of Biological Dynamics, 2007, 1, 320-346.	1.7	3
122	Numerical solutions for a coupled non-linear oscillator. Journal of Mathematical Chemistry, 2000, 28, 325-340.	1.5	2
123	MATHEMATICAL MODELING OF THE IMPACT OF PERIODIC RELEASE OF STERILE MALE MOSQUITOES AND SEASONALITY ON THE POPULATION ABUNDANCE OF MALARIA MOSQUITOES. Journal of Biological Systems, 2020, 28, 277-310.	1.4	2
124	Mathematics of Malaria and Climate Change. Mathematics of Planet Earth, 2019, , 77-108.	0.1	2
125	Sex-biased prevalence in infections with heterosexual, direct, and vector-mediated transmission: A theoretical analysis. Mathematical Biosciences and Engineering, 2017, 15, 125-140.	1.9	2
126	Mathematics of a single-locus model for assessing the impacts of pyrethroid resistance and temperature on population abundance of malaria mosquitoes. Infectious Disease Modelling, 2022, 7, 277-316.	1.9	2

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127	Multiple interacting planar cracks in an anisotropic multilayered medium under an antiplane shear stress: a hypersingular integral approach. Engineering Analysis With Boundary Elements, 1996, 18, 297-303.	3.7	1
128	Numerical modeling of the transmission dynamics of drug-sensitive and drug-resistant HSV-2. Communications in Nonlinear Science and Numerical Simulation, 2001, 6, 23-27.	3.3	0
129	Mathematical Approaches for Emerging and Re-emerging Infectious Diseases: An Introduction by Carlos Castillo Chavez, Sally Blower, Pauline van der Driessche, Denise Kirshner and Abdul Aziz Yakubu, 2002. IMA Volumes in Mathematics and its Applications 125, Springer-Verlag. $79.95, ISBN: 0-387-95354-X. Bulletin of Mathematical Biology, 2003, 65, 547-552.	1.9	0
130	Mathematics of FIV and BTB dynamics in buffalo and lion populations at Kruger National Park. Mathematical Methods in the Applied Sciences, 2018, 41, 8697-8723.	2.3	0
131	Mathematical assessment of the impact of cohort vaccination on pneumococcal carriage and serotype replacement. Journal of Biological Dynamics, 2021, 15, S214-S247.	1.7	0