(A): Peer-reviewed Publications


147. Steffen E. Eikenberry, Marina Mancuso, Enahoro Iboi, Tin Phan, Keenan Eikenberry, Yang Kuang, Eric Kostelich and Abba B. Gumel. 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 Modeling. 5(2020) 293-308. This paper won the best paper award for the journal.


67. M.C. Boily, K. Desai, B. Masse and A.B. Gumel. The incremental role of male circumcision on HIV transmission through its protective effect against other sexually transmitted infections: from efficacy to effectiveness to population-level impact. Sexually Transmitted Infections. 84(2008): II28-II34. DOI.


45. C. Bowman, A.B. Gumel, P. van den Driessche, J. Wu and H. Zhu. A mathematical model for assessing control strategies against West Nile virus. Bulletin of Mathematical Biology. 67(2005): 1107-1133. (This paper was among the Top 25 Hottest Articles for July to September 2005)[http://top25.sciencedirect.com/subject/agricultural-and-biological-sciences/1/journal/bulletin-of-mathematical-biology/00928240/archive/5]. This article has also been selected by Thomson Reuters Essential Science Indicators as one of the most cited papers in its research area (paper to also be highlighted on the websites of the Society of Mathematical Biology and the journal’s).


(B): Other Publications (Edited Volumes and Book Chapters)


(C): Selected Scientific Presentations

2022

- Tutorial on Epidemics at the Bootcamp for the Graph Limits and Processes on Networks: From Epidemics to Misinformation, Simons Institute for the Theory of Computing, University of California, Berkeley, August 29, 2022.
Mathematics of the dynamics and control of the COVID-19 pandemic. Plenary lecture, Pan
African Congress of Mathematicians (PACOM 2022), Marien-Ngouabi University, Brazzaville,
Republic of Congo, August 4, 2022.


Introduction to mathematical epidemiology. Series of plenary lectures at CIMPA Summer Re-
search School in Mathematical Biology/Epidemiology, University of Dhaka, Bangladesh, May
17-20, 2022.

Mathematics of vaccination against the COVID-19 pandemic. Invited lecture, Joint Meetings
of the American Mathematical Society, April 7, 2022 (online).

Mathematics of COVID-19 pandemic and control. Invited plenary at 2022 Showcase on Data
Driven Discovery (part of NSF RTG), University of Arizona, Tucson, Arizona, March 1, 2022.

2021

Mathematics of malaria mosquitoes and disease. Invited lecture, Annual Conference of the
Society of Mathematical Biology (online), June 17, 2021.

Mathematics of the Dynamics and Control of the COVID-19 Pandemic. Invited seminar, Na-
tional Research Experience for Undergraduate Program, Lawrence Technological University,
Michigan, USA, June 9, 2021.

Mathematics of the Dynamics and Control of the COVID-19 Pandemic. Plenary lecture, En-

Mathematics of the Dynamics and Control of the COVID-19 Pandemic. Invited seminar,
Rochester Institute of Technology, April 13, 2021.

Mathematics of Infectious Diseases. AMS Einstein Public Lecture in Mathematics, March 21,
2021.

Mathematics of the Dynamics and Control of the COVID-19 Pandemic. Plenary lecture, Inter-
national E-Conference on Mathematics and its Applications, University of Dhaka, Bangladesh,
April 11, 2021.

Co-organizer, AMS Special Session on Advances in the Applications of Nonstandard Finite
Difference Methods. AMS Joint Meetings, January 6-9, 2021.

Mathematics of the Dynamics and Control of the COVID-19 Pandemic. Invited lecture at

To mask or not to mask: that’s the question for the COVID-19 pandemic. Invited lecture, AMS
Joint Meetings, January 9, 2021.

2020

Research and Publications in Mathematical Sciences: Best Practices. Webinar for Nigerian
• Guest lecture delivered to graduate students of UC Berkeley and Stanford (enrolled in Epidemics course co-taught by Drs. Amin Saberi (Stanford) and Christian Borgs (Berkeley)), October 22, 2020.


2019

• Plenary lecture, Riverside Mathematics Workshop for Excellence and Diversity, University of California Riverside, Riverside, California, October 2019

• Keynote address, 5th Strathmore International Mathematics Conference, Strathmore University, Nairobi, Kenya, August 12-16, 2019

• Plenary lecture, Hands-on Research in Complex Systems School, International Centre for Theoretical Physics, Trieste, Italy, July-August, 2019

• Invited lecture, annual meeting of the Society for Mathematical Biology, Universite de Montreal, Montreal, Canada, July 21-26, 2019

2018


• Keynote address on “STEM as Driver of Knowledge-based Economy”, Annual Meeting of the Southern African Mathematical Sciences Association (SAMSA), Botswana International University of Science and Technology, Pulapye, Botswana, November 19-22, 2018 (the President of Botswana, Dr. Mokgweetsi Eric Keabetswe Masisi, was in attendance during my keynote address).


• Plenary lecture, Second Erice Conference on Mathematical and Computational Epidemiology of Infectious Diseases. E. Majorana School of Mathematics, Erice, Italy, September 1, 2018.

• Plenary lecture, DIMACS Workshop on Mathematics of Planet Earth, DIMACS, Rutgers University, July 24-26, 2018.

• Invited lecture, Annual Meeting of the Society of Mathematical Biology, Sydney, Australia, May 20, 2018 (I co-organized a special session).

• Public lecture on “Towards building a culture of research excellence”. Baze University, Abuja, Nigeria, May 15, 2018.


• Invited lecture, AMS Spring Western Sectional Conference, Portland State University, Portland, Oregon, USA, April 16-18, 2018.

2017

• Plenary lectures on various topics on modeling infectious diseases at the 2017 Summer Course on Modeling and Analysis of Infectious Disease, National Taiwan University, Taipei, Taiwan, July 10-20, 2017.


• Invited lecture on “Modeling the effect of temperature on the dynamics of malaria vector”, AMS Sectional Meeting, University of Central Florida, USA, September 2017.

• Invited lecture on “Dynamically-consistent NSFD Methods for Population Biology Models”. AMS Joint Meetings, Atlanta, January 4-7, 2017. I also organized a special session on “Advances in Mathematics of Ecology, Epidemiology and Immunology of Infectious Diseases”.

2016

- Seminar on “mathematics of climate change and vector-borne diseases”, Instituto de Matemáticas, UNAM-Juriquilla, Queretaro, Mexico, December 9, 2016.


- Invited online seminar on “Mathematical Assessment of the Role of Climate Variables on Malaria Dynamics”. Mathematical Bioscience Institute, REU Online Seminar, July 27, 2016.

- Keynote presentation at a workshop on “Global Change Impact on Diseases and Alien Species Expansion”, African Institute of Mathematical Sciences, Muizenberg, South Africa, May 2016 (https://www.aims.ac.za/assets/files/Workshops/2016-Workshops/Flyer_AIMS-1.pdf. I also gave an introductory lecture on mathematical epidemiology to the students (in addition to co-organizing a workshop on mathematical epidemiology with Professor Andrea Pugliese)


2015

- Invited lecture, Department of Electrical and Computer Engineering, University of Manitoba, Canada, September 15, 2015.


- Invited lecture, SMB Annual Meeting, Georgia State University, Atlanta, Georgia, June 30-July 3, 2015.


- Distinguished lecture, University of Ilorin, Nigeria, May 25, 2015.


2014

- Plenary lecture on “Mathematical analysis of the role of temperature variations on malaria transmission dynamics” at a workshop on Optimal Decision-Making in Economics, Healthcare and Sustainable Ecosystems, Khlaifa University, United Arab Emirates, December 2014.

- Invited lecture on “Modeling Effect of Climate Change on Malaria Transmission Dynamics”. School of Mathematical and Natural Sciences colloquium, November 2014.

- Seminar on “Dynamically-Consistent Nonstandard Finite-difference Discretization of Continuous-time Models”. Applied and Computational Mathematics seminar series (inaugural group seminar), School of Mathematical and Natural Sciences, Arizona State University, November 2014.


- Invited lecture on “Modeling the Spread and Control of Infectious Diseases” (I co-organized this special session). AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, Jul 2014 (with T. Malik).

1996-2013


- Plenary lecture, Biomat 2013, Fields Institute, Toronto, November 2013.

- Invited lectures, Arizona State University (West and Tempe campuses), October 2013.


- Invited lecture, AMS Joint Meetings, San Diego, USA, January 2013.

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- Invited lecture, 9th AIMS Conference on Dynamical Systems and Differential Equations, Orlando, Florida, USA, July 1-5, 2012.


- Plenary lecture, International Conference on Mathematical and Computational Biology, University Putra Malaysia, Malaysia. April 2011.

- Invited lecture at the annual meeting of the Canadian Applied and Industrial Mathematical Society, Memorial University of Newfoundland, St. John’s, Canada. July 2010.


- Distinguished seminar, Department of Mathematics, Memorial University of Newfoundland, St. John’s, Canada. February 2010.


- Invited talk at the 28th Annual Conference of the Nigerian Mathematical Society, University of Ilorin, Nigeria, June 2009.


- Invited seminar at the Mathematical Biosciences Institute, Columbus, Ohio, USA, May 2009.

- Plenary talk at the First International Conference on the Mathematical Sciences, University of Buea, Cameroon, May 2009.

- Invited talk at the Canadian Mathematical Society Summer Meeting, Memorial University, St. John’s, Newfoundland, Canada, June 2009.


- Plenary presentations at Botswana Summer School, August 18-29, 2008.


- Modeling transmission dynamics of HIV/AIDS and co-Infection with other diseases: some results, issues, and challenges. DIMACS-SACEMA Workshop on Facing the Challenge of Infectious Diseases in Africa: The Role of Mathematical Modeling, University of the Witswatersrand, Johannesburg, South Africa, Sept. 2006 (I was chair of Program Committee).


- Dynamics analysis of HIV vaccine models. CMS Summer Meeting, University of Calgary, June 3-5, 2006.


- Dynamical model for multiple-drug resistant tuberculosis with exogenous re-infection. AMS-IMS-SIAM Joint Summer Research Meeting on Modelling the Dynamics of Human Diseases: Emerging Paradigms and Challenges. Snowbird Summer and Ski Resort, Utah, July 2005 (with B. Song).


- Modelling the impact of some anti-HIV Control strategies. Joint CAIMS/CMS Summer Conference, Dalhousie University, June 2004 (30 minutes).

- Modelling the impact of vaccination on disease control. International Conference on Dynamical Systems and Differential Equations (ICDSDE 2004), California State Polytechnic University, Pomona, California, USA, June 2004 (I co-organized the Special Session) (30 minutes).

- Mathematical approaches for controlling infectious diseases. To be presented at the Southern African Mathematical Sciences Association Conference (SAMSA 2004), University of the North, South Africa, November-December, 2004 (1 hour plenary talk).

- Mathematical approaches for emerging and re-emerging infectious diseases: emphasis on SARS and HIV. Medalist Talk, International Conference for Mathematical Sciences, University of Agriculture, Abeokuta, Nigeria, November 2003 (1 hour plenary talk).

- Mathematics of SARS. Distinguished Seminar Series, Department of Mathematics, University of Michigan, Ann Arbor, October 2003 (1 hour).


- Towards a global strategy for SARS. MITACS meeting on SARS, Banff, Calgary, September 2003 (1 hour).

- Modelling SARS outbreaks in the GTA. CAARMS9, Purdue University, USA, June 2003 (1 hour plenary talk).

- Mathematics of SARS. Distinguished Seminar Series, University of Michigan, Ann Arbor, October 2003.


- Dynamics analysis of the effect of condom use on HIV epidemiology. Canadian Mathematics Society Summer Meeting, University Laval, Quebec City, June 2002 (30 minutes).


- Numerical model for the dynamics between HIV and CD4+ T cells in vivo. Canadian Mathematics Society Meeting (Math 2000), McMaster University, June 2000 (20 minutes).

- Numerical methods for some dynamical systems. Dynamical Systems Day, McMaster University, February 1999. Paper also presented at Dept. of Computer Science, University of Toronto, February 1999 (1 hour).

- HIV and anti-viral therapy: a numerical approach. Department of Applied Mathematics, University of Western Ontario, December 1999 (1 hour).


- A second-order explicit method for a non-linear reaction-diffusion model arising in chemical kinetics. CMS Winter Meeting, University of Victoria, December 1997 (15 minutes).