Seyed M. Moghadas, PhD

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Faculty Rank

2014–Present:	Associate Professor (Tenured)
2011–2014:	Assistant Professor

Education

PhD, 2000:	Sharif University of Technology (Applied Mathematics and Ecology) PhD Thesis: "Limit Cycles in the Gause-Type Predator-Prey Systems"
MSc, 1995:	Sharif University of Technology (Applied Mathematics)
BSc, 1993:	Isfahan University of Technology (Mathematics)

Fellowships & Awards

2003–2005:	NSERC Postdoctoral, Institute for Biodiagnostics (IBD-NRC)
2001–2002:	Postdoctoral, Department of Mathematics, The University of Manitoba
2000:	Fellowship, 2nd School on the Mathematics of Economics, ICTP-Italy
1996:	Fellowship, School on Nonlinear Functional Analysis and its Applications to Differential Equations, ICTP-Italy
1995:	First rank position, Graduate School of Mathematics, Sharif University of Technology
1993:	First rank position, Undergraduate School of Mathematics, Isfahan University of Technology

Major Initiatives

2011, Research Laboratory Establishment
Agents-Based Modelling Laboratory (ABM-Lab; York University)
http://abm-lab.yorku.ca/

Employment

2011–Present:	Faculty Member, York University
2006–2011:	Research Scientist, IBD-NRC, Winnipeg
2003–2005:	NSERC Postdoctoral, Biomedical Informatics, IBD-NRC, Winnipeg
2001–2002:	Postdoctoral, Department of Mathematics, University of Manitoba

2000–2001: Assistant Professor, KNT University of Technology

Affiliated Positions

2014–2017: Department of Biology, University of Winnipeg
2005–2013: Department of Mathematics and Statistics, University of Winnipeg
2008–2011: Department of Statistics, University of Manitoba

Research Interests

Mathematical and Computational Modelling:
Infectious Disease Modelling, Agent–Based Simulations, Pathogen–Host Dynamics, Computational Epidemiology, Data Analysis, Public Health, Ecological Interactions

Dynamical Systems:
Stability, Bifurcation, Normal Forms, Index, and Perturbation Theories

Numerical Analysis:
Non–Standard Methods, Convergence Properties, Bifurcation Analysis, Asymptotic Behaviour

Teaching Experience

York University
S 2014: Computational Methods in Mathematical Biology (Grad., MATH 6671)
W 2014: Mathematical Epidemiology (Grad., Reading)
S 2013: Applied Calculus II (UGrad., MATH 1014)
W 2013: Diff. Eqs. for Scientists and Engineers (UGrad., MATH 2271)
F 2012, 2013: Mathematical Modelling (Grad., MATH 6931)
Y 2012, 2013: Extended Problems, Conjectures, and Proofs (UGrad.,MATH 2200)
Y 2012, 2013: 4 Tutorials (MATH 1505; 1014)
F 2011: Computational Mathematics (UGrad., MATH 3090)
W 2012: Applied Calculus II (UGrad., MATH 1014)

University of Winnipeg
F 2006, W 2008: Numerical Methods
F 2005, 2007, 2008: Linear Algebra I

Students and Research Personnel

Postdoctoral Fellows (Principal Supervisor), York University
Yanyu Xiao (2012–2014)
Majid Jaberi (2011–2013)
Marek Laskowski (2010–2012, 2013–2014)
Luiz Guidolin (2010–2012)

Research Associates (Principal Supervisor), University of Winnipeg
Leona Star (BSc Health Policy Research, 2010–2011)
Sarah Dietrich (BSc Physics, 2007–2009)
Justyna Swistak (BSc Statistics, 2007–2008)

Research Associates (Principal Supervisor), University of Manitoba
Melody Ghahramani (PhD Statistics, 2006–2007)
Lindsay Wessel (BSc Applied Mathematics, 2009–2010)
Yi Hua (MSc Statistics, 2008–2010)
Hui Chen (MSc Statistics, 2008)

Graduate Students
Angjelina Konini (PhD Candidate, Commenced 2012), York University
Justyna Swistak (MSc Statistics, Co-supervised; Completed 2011), University of Manitoba
Amir Amiraslani (MSc Applied Mathematics, Completed 2001), KNT University of Technology

Undergraduate Students
Karen Huynh (Applied Mathematics, 2012), York University

Visiting Students
Bismark Singh (PhD, NSF Fellowship, May 2014)
Marie Varughese (PhD, ABM-Lab Fellowship, March 2014)
Jingwei Li (Undergraduate, Mitacs Globalink, June–September 2014)
Sonam Kapoor (PhD, Commonwealth Scholarship, March–August 2012)
Jiacheng Wu (Undergraduate, Mitacs Globalink, July–September 2013)

Theses Examined
York University
Tripti Dutta (MSc, August 2012); Committee Chair
Hootan Habibkhan (MSc, August 2012); Dean's Representative
Xiaotian Wu (PhD, January 2013); Dean's Representative

Indian Institute of Technology Roorkee
Nareshkumar C. Chavada (PhD, October 2012); External Examiner

University of Manitoba
Bryan Demianyk (MSc, March 2010); External Examiner
Dustin Sandison (MSc, March 2010); External Examiner

Professional Service

Activities at the FSc
- Lead in Canada–India initiatives
- Lead in partnership development with Indian Institute of Nuclear Medicine and Allied Sciences (INMAS), Government of India

- Lead in developing research collaboration with IIT-Roorkee India
- Lead in Canada–Brazil initiatives for "Science without Borders"
- Consultation for hiring information technology (IT) Director

Departmental and University Committees

2013–Present: York Committee on Computing

2013–2014: Curriculum – Applied Mathematics; Departmental Newsletter (Chair); Computer Facilities; Tenure and Promotion Adjudicating Committee

2012–2015: FS Admission and Recruitment

2011–2013: Curriculum – Applied Mathematics; Computer Facilities; Industrial Liaison (Chair); Tenure and Promotion Adjudicating Committee;

External Committees and Review Panels

- Canadian Institutes of Health Research
  - Doctoral Research Awards (2011–2013)
  - Canada Graduate Scholarships Master's Awards (2011–2013)
  - Dissemination and Networking Events (2012–2014)
- 21st Annual Canadian Conference on HIV/AIDS Research (2012)
  - Epidemiology and Public Health Sciences Review Team

Editorial Board

- BMC Public Health
  - Editorial Advisor (2013–Present)
  - Deputy Section Editor: *Biostatistics and Methods* (2010–2013)
  - Associate Editor (2009–2010)
- AIMS Public Health
  - Associate Editor (2013–Present)
- Mathematical Population Studies
  - Guest Editor: Special Issue on Tuberculosis
- Canadian Applied Mathematics Quarterly
  - Guest Editor: Special Issue Dedicated to the Memory of Dr. Beni Sahai

Reviewer for

- ***Publishers***: Springer–Verlag (Books), World Scientific, BIOMAT Proceedings
- ***Medical and Public Health***: Annals of Epidemiology, Canadian Medical Association Journal, BMC Infectious Diseases, BMC Public Health
- ***Applied Mathematics***: Dynamics of Continuous, Discrete, and Impulsive Systems B, Journal of Difference Equations and Applications, Journal of Computational and Applied Mathematics, Electronic Journal of Differential Equations, Nonlinear Analysis B (Real World Applications), Mathematics and Computers in Simulation, Journal of the Franklin Institute, International Journal of Mathematics and Mathematical Sciences

- ***Mathematical Medicine, Biology and Ecology***: Computational and Mathematical Methods in Medicine, Mathematical Biosciences and Engineering, Journal of Mathematical Biology, Journal of Theoretical Biology, Journal of Biological Dynamics, Journal of Biological Systems, Ecological Modelling, BioSystems
- ***Funding Agencies*:** Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Mathematics of Information Technology and Complex Systems (MITACS Accelerate Internship Program, Canada), National Fund for Scientific & Technological Development (National Research Funding Competition, Chile)

Contracts, Consultations and Advisory Roles

- Public Health Agency of Canada
- National Collaborating Centre for Infectious Diseases
- Manitoba Health Pandemic Influenza Strategic Advisory Committee

Workshops and Sessions Organized

- Canada–India Workshop: "*Mathematical Modelling of Infectious Diseases*", IIT Roorkee, January 18–25, 2014, Roorkee, India (Co–organized with S. Banerjee)
- BIOMAT: "*13th International Symposium on Mathematical and Computational Biology*", Fields Institute, November 4–9, 2013, Toronto (Co–organized with E. Massad, J. Wu, R.P. Mondaini, D. Wallace, S. Sivaloganathan, L. Mondaini)
- CIHR Workshop on "*Mathematical Modelling of Indigenous Population Health*", Banff International Research Centre, September 27–29, 2013, Banff, Chair of Organizing Committee (Co–organized with M. Li, B. Sander, J. Wu)
- Summer School on "*Mathematics of Infectious Diseases*", Fields Institute, May 19–27, 2013, Toronto (Co–organized with J. Heffernan, H. Zhu, N. Madras, J. Wu)
- Canada–Brazil Workshop on "*Health Informatics and Infectious Disease Dynamics*", University of São Paulo, February 1–2, 2013, São Paulo, Brazil (Co–organized with CDM members and representative from the University of São Paulo)
- Pan–InfORM Workshop on "*Indigenous Populations Health Protection*", York University, May 7–8, 2012, Toronto, Canada, Chair of Organizing Committee (Co–organized with M. Fast, A. House, N.J. Pizzi, J. Wu)
- Thematic Program on "*The Mathematics of Drug Resistance in Infectious Diseases*", Fields Institute, July 5–16, 2010, Toronto, Canada (Co–organized with D. Fisman, T. Day, J Wu, S. Ruan, T. Wong)
- Pan–InfORM Workshop on *"The First Influenza Pandemic of the 21st Century: Canada's Response, Lessons Learned, and Challenges Ahead",* April 19–20, 2010, Winnipeg, Canada, Chair of Organizing Committee (Co–organized with N.J. Pizzi, J. Wu, P. Yan)
- MITACS–PHAC Workshop on *"Managing Public Health Crises: The Role of Models in Pandemic Preparedness"*, September 29–October 1, 2008, Winnipeg, Canada, Chair of Organizing Committee (Co–organized with N.J. Pizzi, J. Wu, P. Yan)

- A Canada–China Session on *"Disease Dynamics and Health Research"*, the 4th ICMB May 29–June 1, 2007, Wuyishan, China (Co–organized with Y. Zhou)

Membership and Team Activities

- Pan–InfORM (Pandemic Influenza Outbreak Research Modelling), Chair
  - *Modelling of Pandemic Influenza Mitigation Strategies*, 2009–Present
- MITACS Project (Biomedical and Health)
  - *Transmission Dynamics and Spatial Spread of Infectious Diseases: Modelling, Prediction and Control*, 2007–2011
- START Modelling (Sexually Transmitted and Related Threats Modeling)
  - *Canadian Network for Public Health Intelligence*, 2007–Present
- MITACS COR (MITACS College of Reviewers)
  - *MITACS Graduate Research Internship Program*, 2007–Present

International Collaborations

Indian Institute of Technology (IIT-Roorkee, India): Vector-borne disease modelling program with funding request from Department of Atomic Energy (India)

University of São Paulo and the National Institute of Science and Technology in Complex Systems (Brazil): Quantitative risk assessment methods for dengue infection control with funding request from Science without Borders (Brazil)

Industrial Collaborations

Sanofi Canada (Ontario): partnership research on Fluzone High-Dose influenza vaccine with matching funds from Mitacs (cluster internships)

Medicago (Quebec): partnership research on influenza infection with matching funds from Mitacs (cluster internships)

GeneYouIn (Ontario): partnership research on genetic analysis for disease risk assessment with matching funds from Mitacs (cluster internships)

GlaxoSmithKline (Ontario, and Belgium): collaborative research on influenza vaccination (Ontario), and pertussis infection control (Belgium)

InfoMagnetics Technologies Corporation (Manitoba): partnership research on developing decision-support tools with funding from NSERC Engage

Grants

Research Proposals

- Mitacs Cluster 2014–2015
  Impact of Early Vaccination During Influenza Outbreaks ($90,000)
  Sole PI: **S.M. Moghadas**
  Industrial Partner: Medicago

- NSERC Engage 2014
  An Agent–Based Decision Support Tool for Master Data Management ($24,200)
  Sole PI: **S.M. Moghadas**
  Industrial Partner: InfoMagnetics Technologies Corporation

- Mitacs Accelerate Internship 2014
  ExomeAnnotator: Developing a System Biology Approach to Genome Annotation for Disease Risk Assessment (initial phase: $15,000)
  Sole PI: **S.M. Moghadas**
  Industrial Partner: GeneYouIn

- Programa Ciência sem Fronteiras 2014–2017, Science without Borders, Brazil
  Evaluating Strategies for Prevention and Control of Dengue Using Quantitative Decision–Support Methods (Brazil R$256,400 ~ $123,000)
  PIs: **S.M. Moghadas,** A. Souto-Martinez
  Co–investigators:A. Espindola, D. Girardi, E. Massad, M. Laskowski

- NSERC Discovery Grant 2013–2018
  Optimizing Vaccination Strategies Within a Population–Pathogen Landscape ($55,000)
  Sole PI: **S.M. Moghadas**

- CIHR Operating Grant 2011–2014
  Strategies for Protecting Vulnerable Canadian Populations from Emerging Infectious Diseases ($228,508)
  Nominated PI: **S.M. Moghadas**
  PI: A.L. Greer
  Co–investigators: D.L. Buckeridge, S.M. Driedger, A. Kumar, N.J. Pizzi, J. Wu

- Public Health Agency of Canada 2012–2013
  Research and Analysis to Inform Strategies for Mitigating the Impact of Pandemic Influenza in Remote Communities ($30,000)
  Sole PI: **S.M. Moghadas**

- NCCID Project 2012–2013
  Optimal Treatment Strategies in Remote and Isolated Communities ($15,000)
  Sole PI: **S.M. Moghadas**

- MITACS NCE Strategic Project 2011–2013
  Optimal Strategies for Antiviral Treatment during an Influenza Epidemic ($110,000)
  Sole PI: **S.M. Moghadas**
  Supporting a postdoctoral fellowship

- CIHR Operating Grant 2010–2011

Assessing Interventions for Protecting Vulnerable Populations during the 2009 H1N1 Pandemic ($99,839)
Nominated PI: M. Krahn
Co–PIs: **S.M. Moghadas**, C.T. Bauch,
Co–investigators: S. Deeks, J. Kwong, A. McGeer, B. Sander, J. Wu

- MITACS–NCE 2010–2012
  Transmission Dynamics and Spatial Spread of Infectious Diseases: Modelling, Prediction and Control ($396,000)
  Co–investigators: MITACS Project Team on Biomedical and Health

- MITACS–PHAC Accelerate Internship 2010–2011
  Understanding the Spread of the 2009 H1N1 Pandemic in Special Canadian Community Settings: A Case Study of Manitoba's Indigenous Populations ($45,000)
  PI: **S.M. Moghadas**
  Co–investigator: J. Wu

- NSERC Discovery Grant 2008–2013
  Epidemiological Models with the Inclusion of Within–Host Viral Dynamics ($70,000)
  Sole PI: **S.M. Moghadas**

- CIHR Catalyst Grant 2009–2010
  Evaluation of Mitigation Strategies for Pandemic Preparedness in Canada ($96,588)
  Nominated–PI: **S.M. Moghadas**
  Co–PIs: N.J. Pizzi, J. Wu
  Co–investigators: M.E. Alexander, S.M. Driedger, D.N. Fisman, L.L. Roos, P. Yan

- MITACS Accelerate 2009–2010
  Vaccination Strategies During Pandemic Influenza ($90,000)
  PI: **S.M. Moghadas**
  Co–investigators: D.N. Fisman, J. Wu

- CIHR Catalyst Grant 2009–2010
  Pan–Canadian Decision–Making Support Network for Pandemic Preparedness ($100,000)
  Nominated PI: B. Pourbohloul
  Co–investigators: **S.M. Moghadas**, D. Earn, A. McGeer, D.N. Fisman, R. Tellier, C. Beauchemin, F. Brauer, D. Buckeridge, J. Dushoff, K. Khan, C. Dean, J. Wu, C.T. Bauch

- MITACS–NCE 2009
  Modelling Strategies for Interpandemic and Pandemic Influenza Infection Control ($27,500)
  Co–investigators: MITACS Project Team

Networking Activities

- CIHR–NCCID–ICID Workshop 2014
  Improving Population Health Through Communities of Practice ($28,450)
  Nominated PI: **S.M. Moghadas**
  Co–investigators: S.M. Driedger, K.L. Richardson, J. Smylie

- Going Global Innovation Canada–Brazil Workshop 2013
  Canada–Brazil Workshop on Health Informatics and Infectious Disease Dynamics ($18,043)
  PI: J. Wu
  Co–investigators: **S.M. Moghadas**, J.M. Heffernan, H. Zhu

- CIHR–NCCID Dissemination Event 2012–2013
  Indigenous Populations Health Protection ($37,500)
  Nominated PI: **S.M. Moghadas**
  Co–investigators: N.J. Pizzi, J. Wu

- MPE 2013 – BIRS Workshop
  Mathematical Modelling of Indigenous Populations Health (BIRS hosting support; CIHR: $9,800)
  Sole PI: **S.M. Moghadas**

- MITACS Networking Grant 2012–2013
  Strategic Response Planning for Emerging Infectious Diseases ($58,580)
  PI: **S.M. Moghadas**
  Co–investigators: J. Wu, N.J. Pizzi, D.L. Buckeridge

- Pan–InfORM CIHR–MITACS Workshop 2010
  The First Influenza Pandemic of the 21st Century: Canada's Response, Lessons Learned, and Challenges Ahead ($35,000)
  Nominated PI: **S.M. Moghadas**
  Co–investigators: J. Wu, N.J. Pizzi, P. Yan

- MITACS–PHAC Workshop 2008
  Managing Public Health Crises: The Role of Models in Pandemic Preparedness ($31,000)
  PI: **S.M. Moghadas**
  Co–investigators: J. Wu, N.J. Pizzi, P. Yan

Internal Funds at York

- York University Strategic Hiring Start–Up Grant 2011 ($45,000)
- ABM–Lab Infrastructure 2012, HPC System ($17,000)
- FSc Junior and Minor Research Awards
  2012: $3,793

2013: $3,829
2014: $2,570

CFI JELF Infrastructure Funds

- *Quantitative Methods and Infrastructure for Rapid, Evidence-Based Decision-Support in Public Health* ($375,000)
  Sole PI: **S.M. Moghadas**

Summary of Grants	Past	Current	Career Total	Submitted
As principal investigator	$800,499	$441,158	$1,241,657	$985,947
As co-investigator	$541,043	–	$541,043	–
Total amount	$1,341,542	$441,158	$1,782,700	$985,947

Research Publications (Refereed)

2014

Morrison K, Buckeridge DL, Xiao Y, **Moghadas SM**, The impact of geographical location of residence on disease outcomes among Canadian First Nations populations during the 2009 influenza A(H1N1) pandemic, *Health and Place* 26: 53–59.

Xiao Y, **Moghadas SM**, The impact of ethnicity and geographic location of residence on the 2009 influenza H1N1 pandemic vaccination, *Epidemiology and Infection*. (in press)

Laskowski M, Greer AL, **Moghadas SM**, Antiviral strategies for emerging influenza viruses in remote communities, *PLoS One* 9(2): e89651.

Jaberi–Douraki M, **Moghadas SM**, Optimal control of vaccination dynamics during an influenza epidemic, *Mathematical Biosciences and Engineering*. (in press)

Driedger SM, Cooper E, **Moghadas SM**, Developing model–based public health policy through knowledge translation: the need for a "Communities of Practice", *Public Health* 128: 561-567.

Xiao Y, Brauer F, **Moghadas SM**, Can treatment increase the epidemic size? *Journal of Mathematical Biology*. (in press)

Laskowski M, **Moghadas SM**, A general framework for agent–based modelling with applications to infectious disease dynamics, *BIOMAT Proceedings*: 318-339.

Espindola A, Souto Martinez A, **Moghadas SM**, An agent–based modelling framework for tuberculosis infection with drug–resistance, *BIOMAT Proceedings*: 374-388.

Moghadas SM, Optimal treatment strategies for remote and isolated communities, Purple Paper, *National Collaborating Centre for Infectious Diseases* 41: 1–3.

2013

Xiao Y, **Moghadas SM**, Impact of viral drift on vaccination dynamics and patterns of seasonal influenza, *BMC Infectious Diseases* 13: 589.

Laskowski M, Duvvuri VRSK, Buckeridge DL, Wu G, Wu J, **Moghadas SM**, Influenza H3N2 variant viruses with pandemic potential: preventing catastrophe in remote and isolated Canadian communities, *Preventive Medicine* 57: 910–913.

Mostaco–Guidolin LC, Towers SMJ, Buckeridge DL, **Moghadas SM**, Age distribution of infection and hospitalization among Canadian First Nations during the 2009 H1N1 pandemic, *American Journal of Public Health* 103: e39–e44.

Jaberi–Douraki M, **Moghadas SM**, Optimality of a time–dependent treatment profile during an epidemic, *Journal of Biological Dynamics* 7: 133–147.

Jaberi–Douraki M, Heffernan JM, Wu J, **Moghadas SM**, Optimal treatment profile during an influenza pandemic, *Differential Equations and Dynamical Systems* 21(3): 237–252.

Morrison K, Xiao Y, **Moghadas SM**, Buckeridge DL, Using surveillance data to identify risk factors for severe H1N1 in First Nations, *Online Journal of Public Health Informatics* 5(1): e42.

2012

Mostaco–Guidolin LC, Bowman CS, Greer AL, Fisman DN, **Moghadas SM**, Transmissibility of the 2009 H1N1 pandemic in remote and isolated Canadian communities: a modelling study, *British Medical Journal – Open*, 2: e001614.

Duvvuri VRSK, Heffernan JM, **Moghadas SM**, Duvvuri D, Guo H, Fisman DN, Wu J, Wu GE, The Role of cellular immunity in Influenza H1N1 population dynamics, *BMC Infectious Diseases* **12**: 329.

Richardson K, Driedger SM, Pizzi NJ, Wu J, **Moghadas SM**, Indigenous populations health protection: a Canadian perspective, *BMC Public Health* 12: 1098.

2011

Moghadas SM, Pizzi NJ, Wu J, Tamblyn SE, Fisman DN, Canada in the face of the 2009 H1N1 pandemic, *Influenza and Other Respiratory Viruses* 5: 83–88.

Laskowski M, Mostaco–Guidolin LC, Greer AL, Wu J, **Moghadas SM**, The impact of demographic variables on disease spread: influenza in remote communities, *Scientific Reports* (*Nature*) 1; 105: 1–7.

Mostaco–Guidolin LC, Pizzi NJ, **Moghadas SM**, A classical approach for estimating the transmissibility of the 2009 H1N1 pandemic, *Canadian Applied Mathematics Quarterly* 19: 185–194.

Mostaco–Guidolin LC, Greer AL, Sander B, Wu J, **Moghadas SM**, Variability in transmissibility of the 2009 H1N1 pandemic in Canadian communities. *BMC Research Notes* 4: 537.

Bowman CS, Arino J, **Moghadas SM**, Evaluation of vaccination strategies during pandemic outbreaks. *Mathematical Biosciences and Engineering* 8: 117–125 (Special Volume on Pandemic H1N1 2009).

Wessel L, Hua Y, Wu J, **Moghadas SM**, Public health interventions for epidemics: implications for multiple infection waves. *BMC Public Health* 11 (Suppl 1): S2.

Arino J, Bauch CT, Brauer F, Driedger SM, Greer AL, **Moghadas SM**, Pizzi NJ, Sander B, Tuite A, van den Driessche P, Watmough J, Wu J, Yan P, Pandemic influenza: modelling and public health perspectives, *Mathematical Biosciences and Engineering* 8: 1–20 (Special Volume on Pandemic H1N1 2009).

Mostaco–Guidolin LC, Pizzi NJ, Demko AB, **Moghadas SM**, A software development framework for agent–based infectious disease modelling, In: Biomedical Engineering, Trends, Researches and Technologies, In–Tech, Chapter 33, pp. 641–664.

Moghadas SM, Dynamics of resistance in influenza with compensatory mutations, *Mathematical Population Studies*, 18: 106–121 (Special Issue on Immunology).

Rathi N, **Moghadas SM**, Shivakumar PN, Therapeutic Modeling of Diabetes Type 1, In: Type 1 Diabetes – Complications, Pathogenesis, and Alternative Treatments, In–Tech, Chapter 22, pp. 461–470.

Conway JM, Tuite AR, Fisman DN, Hupert N, Meza R, Davoudi B, English K, van den Driessche P, Brauer F, Ma J, Meyers LA, Smieja M, Greer AL, Skowronski DM, Buckeridge DL, Kwong JC, Wu J, **Moghadas SM**, Coombs D, Brunham RC, Pourbohloul B, Vaccination against 2009 pandemic H1N1 in a population dynamical model of Vancouver, Canada: timing is everything, *BMC Public Health* 11: 932.

2010

Duvvuri VRSK, **Moghadas SM**, Guo H, Duvvuri B, Heffernan J, Fisman DN, Wu GE, Wu J, Highly conserved cross–reactive CD4+ T–cell HA–epitopes of seasonal and the 2009 pandemic influenza viruses, *Influenza and Other Respiratory Viruses* 4: 249–258.

Hansen E, Day T, Arino J, Wu J, **Moghadas SM**, Strategies for the use of oseltamivir and zanamivir during pandemic outbreaks, *Canadian Journal of Infectious Diseases and Medical Microbiology* 21: e28–e63.

Tuite AR, Greer AL, Whelan M, Winter A–L, Yan P, Wu J, **Moghadas SM**, Buckeridge D, Pourbohloul B, Fisman DN, Estimated epidemiologic parameters and morbidity associated with pandemic H1N1 influenza, *Canadian Medical Association Journal* 182: 131–136.

Star L, **Moghadas SM**, The role of modelling in public health planning and decision making, Purple Paper, *National Collaborating Centre for Infectious Diseases* 22: 1–6.

2009

Moghadas SM, Bowman CS, Röst G, Fisman DN, Wu J, Post–exposure prophylaxis during pandemic outbreaks, *BMC Medicine* 7:73.

Moghadas SM, Day T, Bauch C, Driedger SM, Brauer F, Greer AL, Yan P, Wu J, Pizzi NJ, Fisman DN, (Pan–InfORM Team) Modelling of pandemic influenza: a guide for the perplexed. *Canadian Medical Association Journal*, 181: 171–173.

Arino J, Bowman CS, **Moghadas SM**, Antiviral resistance during pandemic influenza: implications for stockpiling and drug use. *BMC Infectious Diseases* 9: 1–12.

Moghadas SM, Bowman CS, Arino J, Competitive interference between influenza viral strains, *Canadian Applied Mathematics Quarterly* 17: 309–316.

Alexander ME, Dietrich SM, Hua Y, **Moghadas SM**, A comparative evaluation of modelling strategies for the effect of treatment and host interactions on the spread of drug resistance. *Journal of Theoretical Biology* 259: 253–263.

Moghadas SM, Prophylaxis of healthcare workers in an influenza pandemic, In: Handbook of Disease Burdens and Quality of Life Measures. (Book Chapter, 82) Springer–Verlag, pp. 1419–1431.

Moghadas SM, Pizzi NJ, Wu J, Yan P, Managing public health crises: the role of models in pandemic preparedness. *Influenza and Other Respiratory Viruses* 3: 75–79.

2008

Moghadas SM, Management of drug–resistance in the population: influenza as a case study. *Proceedings of the Royal Society of London B – Biological Sciences* 275: 1163–1169.

Moghadas SM, Bowman CS, Röst G, Wu J, Population–wide emergence of antiviral resistance during pandemic influenza. *PLoS One* 3(3): e1839.

Alexander ME, **Moghadas SM**, Röst G, Wu J, A delay differential model for pandemic influenza with antiviral treatment. *Bulletin of Mathematical Biology* 70: 382–397.

Moghadas SM, Corbett BD, Limit cycles in a generalized Gause–type predator–prey model. *Chaos, Solitons & Fractals* 37: 1343–1355.

Moghadas SM, Alexander ME, Sahai BM, Waning herd immunity: a challenge for eradication of measles. *Rocky Mountain Journal of Mathematics* 38: 1587–1607.

2007

Alexander ME, Bowman CS, Feng Z, Gardam M, **Moghadas SM**, Röst G, Wu J, Yan P, Emergence of drug–resistance: implications for antiviral control of pandemic influenza. *Proceedings of the Royal Society of London B – Biological Sciences* 274: 1675–1684.

Gardam M, Liang D, **Moghadas SM**, Wu J, Zeng Q, Zhu H, The impact of prophylaxis of healthcare workers on influenza pandemic burden. *Journal of the Royal Society of London Interface* 4: 727–734.

Nilam, Alexander ME, Mathur R, **Moghadas SM**, Shivakumar PN, Modelling the effect of CSII on the control of glucose concentration in type 1 diabetes. *Applied Mathematics and Computation* 187: 1476–1483.

- 2006

Moghadas SM, Gaining insights into human viral diseases through mathematics. *European Journal of Epidemiology* 21: 337–342.

Alexander ME, Summers AR, **Moghadas SM**, Neimark–Sacker bifurcations in a non–standard numerical scheme for a class of positivity–preserving ODEs. *Proceedings of the Royal Society of London A* 462: 3167–3184.

Moghadas SM, Alexander ME, Bifurcations in an epidemic model with nonlinear incidence and infection–dependent removal rate. *Mathematical Medicine and Biology, IMA Journal* 23: 231–254.

Alexander ME, **Moghadas SM**, Rohani P, Summers AR, Modelling the effect of a booster vaccination on disease epidemiology. *Journal of Mathematical Biology* 52: 290–306.

Moghadas SM, Alexander ME, Bifurcation and numerical analysis of a generalized Gause–type predator–prey model. *Dynamics of Continuous, Discrete, and Impulsive Systems B* 13: 533–554.

- 2005

Alexander ME, **Moghadas SM**, Bifurcation analysis of an SIRS epidemic model with generalized incidence. *SIAM Journal on Applied Mathematics* 65: 1794–1816.

Alexander ME, **Moghadas SM**, O(ℓ) shift in Hopf bifurcations for a class of non–standard numerical schemes. *Electronic Journal of Differential Equations,* Conference 12: 9–19.

Moghadas SM, Alexander ME, Dynamics of a generalized Gause–type predator prey model with a seasonal functional response. *Chaos, Solitons & Fractals* 23: 55–65.

- 2004

Moghadas SM, Modelling the effect of imperfect vaccines on disease epidemiology. *Discrete and Continuous Dynamical Systems Ser. B* 4: 999–1012.

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▸ 2002

Moghadas SM, Two core group models for sexual transmission of disease. *Ecological Modelling* 148: 15–26.

Moghadas SM, Gumel AB, Analysis of a model for transmission dynamics of TB. *Canadian Applied Mathematics Quarterly* 10: 411–428.

Moghadas SM, Gumel AB, Global stability of a two–stage epidemic model with generalized non–linear incidence. *Mathematics and Computers in Simulation* 60: 107–118.

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- 1999

Hesaaraki M, **Moghadas SM**, Non–existence of limit cycles in a predator prey system with a sigmoid functional response. *Canadian Applied Mathematics Quarterly* 7: 401–408.

Newsletters and Knowledge Translation

- 2014

Richardson KL, **Moghadas SM**, Mathematical Modeling of Indigenous Populations Health, *Society for Mathematical Biology* 27(1): 9–10.

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Kim HM, Laskowski M, **Moghadas SM**, Sajad A, Asif M, A framework for comparing early warning systems across domains: a step toward a data-integrated public health EWS, WOCSOC Proceedings, IEEE Information Reuse and Integration.

Seminars, Schools, Conferences, Workshops

- 2014

Indo–Canadian Workshop on Mathematical Modelling of Infectious Diseases, *Co–organizer and Plenary Speaker*, Indian Institute of Technology, Roorkee, India, January 20–22

- 2013

BIOMAT 2013 International Symposium, *Co–organizer and Plenary Speaker*, Fields Institute, Toronto, November 4–9

Biology Seminar, University of Winnipeg, *Invited Talk*, Winnipeg, November 15

Workshop on Mathematical Modelling of Indigenous Population Health, *Chair of Organizing Committee*, Banff International Research Station, Alberta, September 27–29

International Conference: Applied Mathematics, Modeling and Computational Science, *Invited Talk*, Wilfred Laurier University, Waterloo, August 26–30

Summer School on Mathematics of Infectious Disease, *Co–organizer and Speaker*, York University, Toronto, May 19–17

Environments and Health Exposure, Measurement and Prevention Systems Forum, Canadian Institutes of Health Research, *Invited Discussant*, Ottawa, May 22–23

Workshop on Establishing the Scientific Foundation for Quantitative Public Health Decision–Making: Linking surveillance, disease modeling, and simulation, *Invited Talk*, Fields Institute, Toronto, April 29–30

Reducing the burden of Influenza–like–illness in Canada: A National Consultation on Useful Products for Public Health Practitioners, *Invited Discussant*, Toronto, March 28

ICMC Summer School on Differential Equations, *Plenary Talk*, University of São Paulo, São Carlos, February 4–8

Canada–Brazil Workshop on Health Informatics and Infectious Disease Dynamics, *Co–chair and Speaker*, University of São Paulo, Brazil, February 1–2

2012

Open Problem Workshop in Mathematical Epidemiology, *Invited Talk*, University of British Columbia (Centre for Disease Control), *Invited Talk*, Vancouver, December 5–6

Tuberculosis in Canada: Detection, Intervention, and Compliance, *Invited Discussant*, Public Health Agency of Canada, Ottawa, November 14–15

Mathematics for Information Processing and Management, *Invited Talk*, American Institute of Mathematical Sciences, Orlando, USA, July 1–5

Analysing and Quantifying Pandemic Risk, SCOR International Research Conference, *Invited Talk*, Paris, France, July 9–10

Canadian Applied and Industrial Mathematics Society, Session on Mathematical Immunology, Field Institute, *Co–organizer and Speaker*, Toronto, June 24–28

Canada–China Meeting on Public Health Modeling, University of Alberta, *Invited Talk*, Edmonton, May 27–31

Public Health Workshop: Indigenous Populations Health Protection, *Chair of the Organizing Committee and Keynote Speaker*, York University, Toronto, May 7–8

Incubation Day, Centre for Disease Modelling, *Chair of Organizing Group*, York University, Toronto, January 24

2011

Mathematics and Statistics Graduation Award Ceremony, *Keynote Speaker*, York University, Toronto, November 23

CIHR–III New Investigators Forum, *Invited Poster*, Lac Delage (Québec), October 14–16

Canada–India Workshop on Frontiers in Science & Engineering, York University, *Invited Talk*, Toronto, October 11

Health Systems Research on H1N1 Knowledge Translation Workshop, Canadian Institutes of Health Research, *Co–organizer and Speaker*, Ottawa, September 19–20

Symposium on Modelling and Informatics of Disease and Environment, York University, *Invited Talk*, Toronto, August 29–31

Planning Assumptions Workshop: Canadian Pandemic Influenza Preparedness, Public Health Agency of Canada, *Co-organizer and Speaker*, Winnipeg, February 1–2

Mathematics in Emerging Infectious Disease Management, Centro Internacional de Ciencias A.C., *Invited Talk*, Cuernavaca, Mexico, January 10–15

2010

CIHR Canadian Pandemic Preparedness Meeting: Outcomes, Impacts, and Lessons Learned, *Invited Talk*, Montreal, November 12–13

Thematic Program on the Mathematics of Drug Resistance in Infectious Diseases, *Invited Talk* (mathematical immunology), Fields Institute, Toronto, July 19–30

Thematic Program on the Mathematics of Drug Resistance in Infectious Diseases, *Co-organizer and Speaker*, Fields Institute, Toronto, July 5–16

Pan-InfORM Workshop, The First Influenza Pandemic of the 21st Century: Canada's Response, Lessons Learned, and Challenges Ahead, *Chair of Organizing Committee and Speaker*, University of Winnipeg and NRC-IBD, Winnipeg, April 19–20

2009

Signal Detection Meeting: Surveillance and Modelling, Ontario Agency for Health Protection and Promotion, *Invited Discussant*, Toronto, October 7–9

Mitigating the Spread of Influenza A (H1N1), Part II, BC Centre for Disease Control, *Co-organizer and Speaker*, Vancouver, September 14–16

Modelling Workshop: H1N1, *Co-organizer and Speaker*, Public Health Agency of Canada, Toronto, July 9

Canadian Pandemic Preparedness Meeting: H1N1 Outbreak Research Response, *Invited Talk*, Canadian Institutes of Health Research, Toronto, July 8

Workshop on Mitigating the Spread of A/H1N1 Flu: Lessons Learned from Past Outbreaks, *Keynote Speaker*, Arizona State University, Tempe, June 25–28

Canadian Applied Mathematical and Industrial Society, *Invited Talk*, The University of Western Ontario, London, June 10–14

Workshop on Mathematical Modelling and Geo-Simulations for Disease Spread, *Invited Talk*, Public Health Agency of Canada, Ottawa, February 17–18

2008

Evolutionary Game Theory Seminar Series, *Invited Talk*, University of Winnipeg, November 24

Workshop on Managing Public Health Crises: The Role of Models in Pandemic Preparedness, *Chair of Organizing Committee and Speaker,* NRC-Institute for Biodiagnostics, Winnipeg, September 29-October 1

Fields-MITACS Industrial Problem-Solving Workshop, *Invited Talk*, Fields Institute, Toronto, August 11–15

Canada–China Conference on Mathematical Epidemiology, Fudan University, *Invited Talk*, Shanghai, P.R. China, May 15–20

Canada–China Conference on the Impact of Climate Change on Vector–Borne and Waterborne Diseases, Nanjing Normal University, *Invited Talk*, P.R. China, May 21–24

MITACS Workshop on Methodologies of Validation and Verification, Inns of Banff, *Invited Talk and Panel Discussant*, Alberta, April 28–May 1

Workshop on Using Data and Models for Decision–Making in Public Health, McGill University, *Invited Talk*, March 28

Seventh Session of the Statistics and Risk Assessment Section's International Expert Advisory Group on Risk Modeling, Public Health Agency of Canada, *Invited Discussant*, Ottawa, March 26–27

2007

Applied Computation and Mathematics Seminar, *Invited Talk*, University of Manitoba, December 4

The Fourth International Conference on Mathematical Biology, *Co–organizer and Speaker*, Wuyishan, Fujian, P.R. China, May 29–June 1

Workshop on Operation Research in Public Health, *Invited Talk*, Desautels Faculty of Management, McGill University, March 29–30

Institute for Biodiagnostics Seminar, *Institute Talk*, National Research Council Canada, Manitoba, February 23

Sixth Session of the Statistics and Risk Assessment Section's International Expert Advisory Group on Risk Modelling, *Invited Discussant*, Public Health Agency of Canada, Ottawa, February 26–27

Mathematical Modelling Workshop: emergence and transmission of drug–resistance viral strains in HIV and influenza, *Invited Talk*, Public Health Agency of Canada, Ottawa, January 15–16

2006

Pandemic Influenza Modelling Meeting, *Invited Talk*, Public Health Agency of Canada, Toronto, March 27–28

2005

Research and Innovation Retreat, *Invited Talk*, International Centre for Infectious Diseases, Winnipeg, October 28–29

Georgia Southern University, Department of Mathematics, *Invited Talk*, March 23–24

2004

Recent Trends in Nonlinear Analysis and Its Applications, *Invited Talk*, Indian Institute of Technology Bombay, India, December 11–13

International Conference on Differential Equations and Applications in Mathematical Biology, *Invited Talk*, Nanaimo, British Columbia, July 18–23

PIMS–MITACS–MSRI Special Program on Infectious Diseases, *Invited Discussant*, Banff International Research Station, Alberta, June 27–July 2

- 2003

Biomedical Informatics Group Seminar, National Research Council Canada, Manitoba, September

Canadian Mathematical Society, *Session Talk*, Summer Meeting, University of Alberta

- 2002

Seminar Series in Mathematical Biology, *Invited Talk*, Institute of Industrial Mathematical Sciences (IIMS), University of Manitoba, September

The 5th Americas Conference on Differential Equations and Nonlinear Dynamics, *Participant*, University of Alberta, Edmonton, July

Canadian Mathematical Society, *Participant*, Summer Meeting, Quebec City, Quebec, June

- 2001

International Conference on Dynamics of Continuous, *Participant*, Discrete and Impulsive Systems (DCDIS), University of Western Ontario, London, June

Seminar Series in Mathematical Biology, *Invited Talk*, Department of Mathematics, University of Manitoba, November

- 2000

The Second School on the Mathematics of Economics, *Participant*, ICTP–Italy, August

- 1996

School on Nonlinear Functional Analysis and Its Applications to Differential Equations, *Participant*, ICTP–Italy, April