

Ashish Goyal

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EDUCATION

Doctor of Philosophy, School of Mathematics and Statistics
The University of New South Wales, Sydney, May 2016
Supervisor: Prof John M. Murray and Dr. Anna Cai
Thesis Title: Mathematical Modeling of Hepatitis D virus

Master of Science (By Research), Communication and Computer Engineering
THE LNMIIT, Jaipur, May 2012
Supervisor: Prof J.B. Shukla and Dr. Vikas Gupta
CPI: 10 (on scale of 10)
Thesis Title: Ecotechnological Methods for water purification: A Modeling and Simulation Study.

Bachelor of Technology, Communication and Computer Engineering
THE LNMIIT, Jaipur, May 2010
CPI: 8.23 (on scale of 10)

PUBLISHED RESEARCH AND GOOGLE SCHOLAR CITATIONS

- **A. Goyal** and J.M. Murray, *Cost-effectiveness of peg-Interferon, Interferon and Oral nucleoside analogues in the treatment of chronic hepatitis B and D infections in China*, Clinical Drug Investigation, 36(8) (637–48), 2016.
- **A. Goyal** and J.M. Murray, *Dynamics of in vivo hepatitis D virus infection*, Journal of Theoretical Biology, 398 (9-19), 2016.
- **A. Goyal** and P. Sharma, *A model on the biological treatment of saline wastewater*, International Journal of Biomathematics, DOI: 10.1142/S1793524517500218, 2016.
- J.M. Murray and **A. Goyal**, *In silico single cell dynamics of hepatitis B virus infection and clearance*, Journal of Theoretical Biology, 388 (91–102), 2015. [4 citations]
- **A. Goyal** and J.M. Murray, *Effect of interferon-alfa therapy on hepatitis D virus*, Hepatology, 61(6) (2117–8), 2015. [4 citations]
- **A. Goyal** and J.M. Murray, *The impact of vaccination and antiviral therapy on hepatitis B and hepatitis D epidemiology*, PLOS One, 9(10): e110143, 2014. [16 citations]
- **A. Goyal**, J.B. Shukla, A.K. Misra and A. Shukla, *Modeling the role of government efforts in controlling extremism spreading in a society*, Mathematical Methods in Applied Sciences, 38 (4300-4316), 2015. [1 citation]
- **A. Goyal**, *Tobacco Epidemics: Effect of marketing bans and awareness programs on its spread*, Applied Mathematics and Computation, 247 (1030-1051), 2014. [2 citations]
- **A. Goyal**, R. Sanghi, A.K. Misra and J.B. Shukla, *Modeling and analysis of the removal of an organic pollutant from a water body using fungi*, Applied Mathematical Modelling, 38 (4863-4871), 2014. [4 citations]
- A.K. Misra, P.K. Tiwari, **A. Goyal** and J.B. Shukla, *Modeling and analysis of the depletion of organic pollutants by bacteria with explicit dependence on dissolved oxygen*, Natural Resource Modeling, 27 (258–273), 2014. [3 citations]
- J.B. Shukla, **A. Goyal**, P.K. Tiwari and A.K. Misra, *Modeling the role of dissolved oxygen-dependent bacteria on biodegradation of organic pollutants*, International Journal of Biomathematics, DOI: 10.1142/S1793524514500089, 2014.

- J.B. Shukla, **A. Goyal**, S. Singh and P. Chandra, *Effects of habitat characteristics on the growth of carrier population leading to increased spread of typhoid fever: A Model*, Journal of Epidemiology and Global Health, 4 (107–114), 2014. [1 citation]
- **A. Goyal**, R. Sanghi, A.K. Misra and J.B. Shukla, *A modeling study on the role of fungi in removing inorganic pollutants*, Mathematical Biosciences, 244 (116–124), 2013. [3 citations]
- J.B. Shukla, **A. Goyal**, K. Agrawal, H. Kushwah and A. Shukla, *Role of technology in combating social crimes: A Modeling Study*, European Journal of Applied Mathematics, 24 (501–514), 2013. [1 citation]
- J.B. Shukla, R. Sanghi, **A. Goyal** and A.K. Misra, *Modeling the desalination of saline water by using bacteria and marsh plants*, Desalination, 277 (113–120), 2011. [2 citations]

SUBMITTED ARTICLES/WORK IN PROGRESS

- **A. Goyal** and J.M. Murray, *Modelling the Impact of Cell-to-cell Transmission in Hepatitis B Virus*, PLOS Computational Biology.
- **A. Goyal** and J.M. Murray, *Recognizing the impact of endemic hepatitis D virus on hepatitis B virus eradication*, Theoretical Population Biology.
- **A. Goyal** and J.M. Murray, *Optimizing budget allocation among interventions modulating the hepatitis B and hepatitis D epidemics in China*, Health Policy and Planning.
- **A. Goyal** and J.B. Shukla, *Modeling and analysis of the role of methane oxidizing bacteria in controlling global warming*, Int. J. of Global Warming.

OPEN RESEARCH ARTICLES

- *Dynamics of extremism in Jammu & Kashmir*, Researchgate.

CONFERENCE/WORKSHOP

- *Determining causes behind clearance, persistence or fulminant hepatitis of acute hepatitis B virus infection*, in ANZIAM conference during Feb 7-11, 2016 in Canberra, Australia.
- *How to optimize budget allocation among interventions modulating the hepatitis B and hepatitis D epidemics in China?*, in Annual NSW/ACT ANZIAM Meeting 2015 during Nov 25-26, 2015 in Sydney, Australia.
- *Dynamics of in vivo hepatitis D virus infection*, in The 2015 Annual Meeting for The SMB during June 30-July 3, 2015 in Atlanta, USA.
- *A 3-D model of hepatitis B virus infection*, in Discrete mathematical models in the life sciences workshop during Feb 6, 2015 in Brisbane, Australia.
- *Impact of delta hepatitis on hepatitis B epidemiology and optimal intervention policies*, in ANZIAM conference during Feb 1-5, 2015 in Gold Coast, Australia.
- *The impact of HBV vaccination and antiviral therapy on hepatitis D epidemiology*, in Annual NSW/ACT ANZIAM Meeting during Nov 27-28, 2013 in Sydney, Australia.
- *An International Workshop on Nonlinear Dynamics*, held during Feb 9-16, 2012 at BGI, Kanpur.
- *A study on the spread of Extremism in a Society*, in Mathematical Modeling and Computer Simulation held at BGI, Kanpur under the auspices of ISSMACS during July 7-9, 2011.
- *Modeling the role of awareness programs by media on the spread of Tobacco Epidemics*, in A National Conference on Mathematical Modeling and Computer Simulation with Applications held at BGI, Kanpur under the auspices of ISSMACS during Feb 17-19, 2012.

INVITED TALKS

- *A better understanding of hepatitis D virus through modelling*, LOYOLA University, USA, 2016.
- *A better understanding of hepatitis D virus epidemiology through modelling*, University of Tokyo, Japan, 2016.
- *Impact of delta hepatitis on hepatitis B epidemiology and optimal intervention policies*, Postgrad Conference, UNSW Australia, 2015.
- *Mathematical modelling of hepatitis D virus (HDV)*, University of Wollongong, Australia, 2014.
- *Modeling dissolved oxygen during biodegradation of organic pollutant(s)*, University of Wollongong, Australia, 2014.

HONORS, AWARDS AND FELLOWSHIPS

- AustMS Lift-off Fellowship, Australian Mathematical Society, 2016.
- Travel Support, CSIRO/ANZIAM Student Support Scheme, ANZIAM 2016.
- Travel Support, School of Mathematics & Statistics, UNSW 2016.
- SMB Landahl-Busenbergl Travel Support, SMB 2015.
- Travel Support, CSIRO/ANZIAM Student Support Scheme, ANZIAM 2015.
- Travel Support, School of Mathematics & Statistics, UNSW 2015.
- Postgraduate Research Support Scheme (PRSS, Travel grants), 2014.
- University International Postgraduate Award (UIPA), UNSW (2013 - 2016).
- PG student topper of Batch 2010, The LNMIIT.
- Ranked 24th in the merit list of state Rajasthan at Senior Secondary Examination (High School), 2004; around 0.05 million students appear every year.

EMPLOYMENT**Teaching,**

- First year undergraduate maths, Student Support Scheme, UNSW (Aug 2014- Present).
- Mathematics-I, Undergraduate students, The LNMIIT (Aug 2012- Dec 2012).
- DBMS and ITWS, Undergraduate students, The LNMIIT (Jan 2012-May 2012).
- Computer Organization, Undergraduate students, The LNMIIT (Jan 2011-April 2011).
- Computer Programming, Undergraduate students, The LNMIIT (Aug 2010-Dec 2010).

Research Assistant,

- "Profile of HDV RNA and HBV DNA levels in patients under Peg-Interferon therapy", Prof. John M. Murray, UNSW, Australia (May 2016- July 2016).
- "Multi-way methods for handling missing data in medical questionnaires", Asst. Prof. Justin Dauwels, Nanyang Technological University, Singapore (Aug 2011- Dec 2011).

PROFESSIONAL AFFILIATIONS

- SMB (Society for Mathematical Biology), 2015-Present.
- AustMS (Australian Mathematical Society), 2014-Present.

ACADEMIC SERVICE**Reviewer**

- Clinical Drug Investigation.
- Bulletin of Mathematical Biology.
- World Journal of Pediatrics.
- Mathematical Biosciences.
- Ecological Complexity.
- International Journal of Biomathematics.
- Journal of Dynamic Systems, Measurement and Control.

Volunteer Experience

- Maths school representative, IEEE-UNSW Branch, 2014-2016.
- Postgraduate steering committee member, School of Mathematics & Statistics, UNSW, 2014.
- National conference ICMMACS coordinator, Kanpur-India, 2011.

REFERENCES

- Prof. John M. Murray, UNSW, Australia (Email: j.murray@unsw.edu.au).
- Prof. J.B. Shukla, Former Head Dept. of Math., IIT Kanpur, India (Email: jbs@iitk.ac.in).
- Asso. Prof. A.K. Misra, BHU, India (Email: akmisra_knp@yahoo.com).
- Asst. Prof. Vikas Gupta, The LNMIIT, India (Email: vikasg.iitk@gmail.com).
- Dr. Anna Cai, UNSW, Australia (Email: a.cai@unsw.edu.au).