

## **Dr Adam Kleczkowski**

**Current Post:** University of Stirling: Chair in Mathematics.

### **Qualifications**

MSc, Jagiellonian University, Kraków, Poland, awarded 1984.

PhD, Jagiellonian University, Kraków, Poland, awarded 1989 for "Dynamical Systems with Impulses" (Polish Government Prize).

### **Previous positions:**

Senior Lecturer (2007-14) and Reader (2014-15), University of Stirling.

Lecturer, Department of Plant Sciences, University of Cambridge and College Lecturer in Mathematics for Natural Sciences, Selwyn College, Cambridge, 2005-2007;

Research Associate, Department of Plant Sciences, Cambridge; A strategic model to evaluate control strategies and disease risk of *Rhizoctonia* in field vegetables; DEFRA-funded project (developing models for spread of plant pathogens; risk analysis; parameter estimation); NERC Soil Biodiversity Thematic Programme; Bye-Fellow, Selwyn College, Cambridge, 2002-2005;

Senior Research Fellow, King's College, Cambridge (model development and fitting for plant pathogens; models of biodiversity), 1996-2002;

Research Associate, Dept. of Zoology and Dept. of Plant Sciences, University of Cambridge, 1992-1996;

Scientific Researcher, Research Centre (Forschungszentrum) Jülich, Germany, 1989-1992;

Research Assistant, Institute of Physics, Jagiellonian University, Poland, 1984-1992.

**Research interests:** Mathematical biology and statistics, with applications in epidemiology, ecology, economics and psychology, with particular emphasis on stochastic and spatial models:

1. Bio-economic models for ecological and epidemiological applications;
2. Modelling spread and control of tree diseases;
3. Prediction and control of disease spread on networks;
4. Models of social and adaptive networks;
5. Classical and Bayesian parameter estimation with applications to epidemiology.

**Administration duties (current and recent):** Head of Mathematics and Statistics Group. Deputy Head of Computing Science and Mathematics, School of Natural Sciences. Head of Mathematical Biology group (2008-2013). Research Director, CSM (2010).

**Recent grants:** 2014 Modelling economic impact and strategies to increase resilience against tree disease outbreaks (BBSRC, £1.1m, PI); 2014 Risks of Animal and Plant Infectious Diseases Through Trade (NSF-BBSRC, USD1.5m USA component, £600k UK component, Co-I); 2013, 2014, 2015 NERC Graduate Course (~£30k, Co-I); 2012 CASE studentship (CEFAS/University of Stirling; £28k, PI); 2011 Department for International Development (£19k; PI); 2010-2011 Medical Research Council Catalyst grant (£50k, PI); 2010-2013 European Investment Bank (€300k, Co-I); 2009 IMA and BSPP travel grants (total £800).

**Teaching (current):** Lectures and tutorials for various mathematical courses across all levels of studies, including algebra, calculus, advanced calculus, real and complex analysis, probability, statistics and numerical methods. Supervision of honours projects. Supervision of student teams for international Mathematical

Contest in Modelling (2012, 2013, 2014; Stirling team in top 1% among 3000+ participants).

**PhD students:** 2 supervised to completion; 2 current PhD students. External examiner (PhD): University of Glasgow, University of Edinburgh, Heriot-Watt University, University of York, University of Sussex. Internal examiner at Stirling.

**Professional membership:** Fellow of the Institute of Mathematics and its Applications; Fellow of the Royal Statistical Society; Member of the British Ecological Society; British Society for Plant Pathology; Edinburgh Mathematical Society.

**Other duties:** Member of the Plant Health Expert Group, Scottish Government (2014-2015). FP7/HORIZON 2020 expert evaluator (2013, 2014, 2015), MSCA and RISE. Regular grant (BBSRC, NERC, ISF) and journal paper reviewer. Editor of Journal of Biological Systems. External examiner, University of Aberdeen.

**Publications:** 37 publications. h-index 22 (Google) and 17 (Thomson), 1355 Google Scholar citations and 748 Thomson Reuters citations.

*Selected recent papers:*

Williams L, Rasmussen S, Kleczkowski A, Maharaj S, and Cairns N. 2015. Protection motivation theory and social distancing behaviour in response to a simulated infectious disease epidemic. *Psychology, Health & Medicine*, DOI: 10.1080/13548506.2015.1028946.

Maharaj S, Kleczkowski A, Rasmussen S, Williams L and Cairns N. 2015.

Karp P, Dybiec B and Kleczkowski A. 2014. Improving epidemic control strategies by extended detection. *International Journal of Modern Physics C* 25, 1350106.

Oleś K, Gudowska-Nowak E and Kleczkowski A. 2014. Cost-benefit analysis of epidemics spreading on clustered random networks. *Acta Physica Polonica B45*, 43-60.

Delaney L, Kleczkowski A, Maharaj S, Rasmussen, S, Williams, L. Reflections on a Virtual Experiment Addressing Human Behavior During Epidemics, 2013.

*Proceedings of the Summer Computer Simulation Conference, Ottawa, Canada.*

Oleś K, Gudowska-Nowak E and Kleczkowski A. 2013. Efficient Control of Epidemics Spreading on Networks: Balance between Treatment and Recovery. *PLoS One* 8, e63813.

Oleś K, Gudowska-Nowak E and Kleczkowski A. 2012. Understanding disease control: influence of epidemiological and economic factors. *PLoS One* 7, e36026

Maharaj S and Kleczkowski A. 2012. Controlling epidemic spread by social distancing: Do it well or not at all. *BMC Public Health*, 12(1):679.

Kleczkowski A, Oleś K, Gudowska-Nowak E and Gilligan CA. 2012. Searching for the most cost-effective strategy for controlling epidemics. *Journal of the Royal Society Interface* 9 pp. 158-169.

Maharaj S, McCaldin T, and Kleczkowski A, 2011. A Participatory Simulation Model for Studying Attitudes to Infection Risk, *Proceedings of the Summer Computer Simulation Conference, Ottawa, Canada.*

Kleczkowski A and Maharaj S, 2010. Stay at Home, Wash Your Hands: Epidemic Dynamics with Awareness of Infection, *Proceedings of the Summer Computer Simulation Conference, Ottawa, Canada.*

Dybiec B, Kleczkowski A, Gilligan CA. 2009. Control of epidemics spreading by Lévy fliers. *J R Soc Interface* 6:941-950.

Kleczkowski A, Gilligan CA. 2007. Parameter estimation and prediction for the course of a single epidemic outbreak of a plant disease. *J R Soc Interface* 4:865-877.