

David Cornelis Groothuizen Dijkema

david.groothuizen.dijkema@auckland.ac.nz · [dcgroothuizendijkema.github.io](https://github.com/dcgroothuizendijkema)
[University of Auckland profile](#)

Education

University of Auckland

Doctoral Candidate in Mathematics Mar. 2022 – present
Thesis topic: Dynamical dependence on topology of symmetric heteroclinic networks
Supervisors: Profs. Claire Postlethwaite and Vivien Kirk

Bachelor of Science (Honours) 2021
with First Class Honours in Applied Mathematics
Honours Dissertation: A heteroclinic network in a spatially-extended four species interaction model
Supervisor: Prof. Claire Postlethwaite

Bachelor of Engineering (Honours) 2017 – 2020
with First Class Honours in Engineering Science
Part IV Project: Synthetic-aperture radar processing on the NVidia Jetson AGX Xavier
Supervisors: Prof. John E Cater and Assoc Prof. Nicholas J Rattenbury

Howick College

2011 – 2015
NZQA Scholarships English and History, Outstanding
University Entrance
NCEA Levels 1, 2, & 3, endorsed with Excellence

Publications

David C Groothuizen Dijkema and Claire M Postlethwaite. (2023). Travelling waves and heteroclinic networks in models of spatially-extended cyclic competition. *Nonlinearity*, **36**(12) 6546–6588. DOI: [10.1088/1361-6544/ad0212](https://doi.org/10.1088/1361-6544/ad0212).
arXiv: [2208.05630](https://arxiv.org/abs/2208.05630) [[math.DS](#)]

Awards and scholarships

Australia and New Zealand Industrial and Applied Mathematics (ANZIAM) 2023
Prize for Best Poster Presentation
Honourable mention for the New Zealand Mathematical Society (NZMS)
Aitken Prize for Best Student Talk
University of Auckland Department of Mathematics 2021
Student Research Conference prize
First in Course Award in MATHS 761 (Dynamical Systems)
University of Auckland Postgraduate Honours Scholarship
University of Auckland Summer Research Scholarship 2020 – 2021
First in Course Award in ENGSCI 355 (Applied Modelling 2019
in Simulation and Optimisation)
University of Auckland Faculty of Engineering 2017, 2018, 2019
Dean's Honours List
Howick College Senior Scholar (Dux) 2015
Howick College Award, for outstanding commitment

Selected presentations

Switching and cycling near heteroclinic networks as a piecewise-smooth dynamical system, *New Zealand Mathematical Society Colloquium*, Victoria University of Wellington, NZ Dec. 2023
Dynamics near heteroclinic cycles and networks June 2023
Centro de Matemática - Universidade do Porto (CMUP) Seminar, ,
Universidade do Porto, Portugal

Dynamics near heteroclinic cycles and networks	June 2023
<i>Leeds Applied Nonlinear Dynamics (LAND) Seminar,</i>	
Department of Mathematics, University of Leeds, UK	
Switching near heteroclinic networks as a piecewise-smooth dynamical system, <i>SIAM Conference on Applications of Dynamical Systems,</i>	May 2023
Portland, OR, USA	
Stability and cycling near heteroclinic cycles and networks,	June 2022
<i>Student Research Conference,</i> Department of Mathematics,	
University of Auckland, NZ	
A spatially-extended model of competition between four species,	June 2021
<i>Student Research Conference,</i> Department of Mathematics,	
University of Auckland, NZ	

Teaching experience

University of Auckland

Department of Mathematics, Faculty of Science

Jul. 2022 – present

Graduate Teaching Assistant for

COMPSCI 120 (Mathematics for Computer Science)

COMPSCI 225 (Discrete Structures in Mathematics and Computer Science)

MATHS 108 (General Mathematics 1)

MATHS 120 (Algebra 1)

MATHS 130 (Calculus 1)

MATHS 253 (Algebra and Calculus 3)

MATHS 260 (Differential Equations)

Mathematics Assistance Room

Department of Engineering Science, Faculty of Engineering

Mar. 2020 – Nov. 2020

Teaching Assistant for

ENGSCI 255 (Modelling and Analytics in Operations Research)

ENGSCI 211 (Mathematical Modelling II)

Employment history

Suez Smart Solutions Ltd.

Nov. 2019 – Mar. 2020

Assistant Optimisation Engineer

Watercare Services Ltd.

Oct. 2018 – Nov. 2019

Undergraduate Engineer

Professional affiliations

New Zealand Mathematical Society (NZMS)

Australia and New Zealand Industrial and Applied Mathematics (ANZIAM)

Society for Industrial and Applied Mathematics (SIAM)

Student member