

David Cornelis Groothuizen Dijkema

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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

NZQA Scholarships English and History, Outstanding 2011 – 2015
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

Nonlinearity Outstanding Reviewer Award 2023
Australia and New Zealand Industrial and Applied Mathematics (ANZIAM)
Prize for Best Poster Presentation

Honourable mention for the New Zealand Mathematical Society (NZMS)
Aitken Prize for Best Student Talk

University of Auckland Academic Career Advancement Award (to participate in the Academic Career Advancement Programme)

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 in Simulation and Optimisation) 2019

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, *Australia and New Zealand Industrial and Applied Mathematics Conference*, Hahndorf, SA, Australia Feb. 2024

Switching and cycling near heteroclinic networks as a piecewise-smooth Dec. 2023

dynamical system, <i>New Zealand Mathematical Society Colloquium</i> , Victoria University of Wellington, NZ	
Dynamics near heteroclinic cycles and networks	June 2023
<i>Centro de Matemática - Universidade do Porto (CMUP) Seminar</i> , , 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> , Portland, OR, USA	May 2023
Stability and cycling near heteroclinic cycles and networks, <i>Student Research Conference</i> , Department of Mathematics, University of Auckland, NZ	June 2022
A spatially-extended model of competition between four species, <i>Student Research Conference</i> , Department of Mathematics, University of Auckland, NZ	June 2021

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 Teaching Assistant for ENGSCI 255 (Modelling and Analytics in Operations Research) ENGSCI 211 (Mathematical Modelling 2)	Mar. 2020 – Nov. 2020

Employment
history

Suez Smart Solutions Ltd. Assistant Optimisation Engineer	Nov. 2019 – Mar. 2020
Watercare Services Ltd. Undergraduate Engineer	Oct. 2018 – Nov. 2019

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	
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