Jeremy Parker

Postdoctoral researcher
Institute of Mechanical Engineering jeremy.parker@epfl.ch
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Switzerland

Research interests

Computational methods for studying unstable and chaotic nonlinear dynamical systems, and their application to geophysical fluid dynamics.

Education

University of Cambridge
PhD, Applied Mathematics, 2020
Thesis: Linear and nonlinear dynamics in stratified shear flows
MA (Cantab), 2019
MMath, with Distinction, 2016
Project: Transient growth in a stratified Bickley jet
BA, Mathematics, 2015

Employment

EPFL, Lausanne, Switzerland
Scientist (postdoctoral researcher), 2020-

Arm Ltd, Cambridge
Graduate software engineer, 2016-2017

Awards and Fellowships

Euromech Young Scientist Prize
European Fluid Mechanics Conference, 2022

Geophysical Fluid Dynamics Program Fellow
Woods Hole Oceanographic Institution, 2019

Smith-Knight and Rayleigh-Knight prize
University of Cambridge, Grade 2, 2019

Beatrice Blore-Browne prize
Churchill College, 2016

Selected Publications

Parker, J P, Ashtari, O and Schneider, T M
Predicting chaotic statistics with unstable invariant tori
To appear in Chaos

Parker, J P and Valva, C, 2023
Koopman analysis of the periodic Korteweg-de Vries equation
Chaos 33, 043102

Parker, J P and Schneider, T M, 2022
Variational methods for finding periodic orbits in the incompressible Navier-Stokes equations
Journal of Fluid Mechanics 941, A17

Parker, J P, Goluskin, D and Vasil, G M, 2021
A sum-of-squares optimisation method for studying the double pendulum
Chaos 31, 103102

Parker, J P, Caulfield, C P and Kerswell, R R, 2020
The viscous Holmboe instability for smooth shear and density profiles
Journal of Fluid Mechanics 896, A14

Parker, J P, Caulfield, C P and Kerswell, R R, 2019
Kelvin-Helmholtz billows above Richardson number 1/4
Journal of Fluid Mechanics 879, R1