Contact information:

- The University of Melbourne
- Director mathematical research institute MATRIX
- Research articles → arxiv.org/a/degier_j_1
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Current research interests:

- Mathematical physics
- (Quantum) integrable systems
- Stochastic processes
- Limit shapes
- Multivariable polynomials

Recent work

(Non-free fermion) limit shapes:

- *Limit shapes for the asymmetric five vertex model* (with R. Kenyon and S.S. Watson, 2020)

Multi-species processes:

- *Integrable stochastic dualities and the deformed Knizhnik-Zamolodchikov equation* (with Z. Chen and Michael Wheeler, 2018)
- *Limiting current distribution for a two species asymmetric exclusion process* (with Z. Chen, I. Hiki, T. Sasamoto and M. Usui, 2018, 2021)
- *Transition probability and total crossing events in the two-species asymmetric exclusion process* (with W. Mead and M. Wheeler, in prep.)

Multi-variable polynomials:

- *Matrix product formula for Macdonald polynomials* (with L. Cantini and M. Wheeler, 2015)
- *A new generalisation of Macdonald polynomials* (with A. Garbali and M. Wheeler, 2017)
- *The R-matrix of the quantum toroidal algebra $U_{q,t}(\ddot{gl}_1)$ in the Fock module* (with A. Garbali, 2021)