

NITheCS Colloquium

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# Eco-evolutionary modelling with Adaptive Dynamics


## Dr Pietro Landi
*(Stellenbosch University)*


Monday, 16 November 2026 | 16h00–17h00 SAST

**HOW TO ATTEND:**

**In person (main venue):**

- Road House Cinema (Neelsie)
  **Stellenbosch University**

**Watch at satellite venues:**

- MITP Boardroom P215, 2nd Floor Physics Building
  **University of the Witwatersrand**
- Seminar Room K310
  Physics Building G5
  **North-West University**

**Online (live stream)**

--- Please note, a recording of the lecture will be published on the NITheCS YouTube channel following the event ---


## ABSTRACT

Adaptive dynamics is a mathematical modelling framework based on ordinary differential equations to describe evolutionary dynamics driven by the underlying ecological interactions. When such interactions are mediated by phenotypes (traits), adaptive dynamics allows the definition of invasion fitness and selection gradients that drive the evolution of the traits. Furthermore, when selection vanishes, higher order derivatives of the fitness determine the possibility of evolutionary branching and phenotypic diversification. This framework is applied to a variety of ecological models.


## BIOGRAPHY

Dr Pietro Landi obtained his PhD from the Polytechnic University of Milan, Italy, in 2014, before joining Stellenbosch University as a postdoctoral fellow in the Department of Mathematical Sciences. He began lecturing in Applied Mathematics in 2021. His research lies at the intersection of mathematical modelling and the life sciences, with a particular focus on ecology and evolution.



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