

S E M I N A R



**Prof Jan Beirlant**  
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Prof Beirlant is an emeritus professor  
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**Date:**  
Friday, 27 February 2026

**Time:**  
13h10-14h10 SAST

- Venues:**
- Room 2048  
Van der Sterr Building,  
cnr Victoria & Bosman Streets  
Stellenbosch
  - Online

**WHO SHOULD ATTEND?**  
All are welcome.

**ENQUIRIES:**  
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## Evolution and recent trends in extreme value analysis

### ABSTRACT:

Fundamental contributions by Weibull, Fréchet, Gumbel, Gnedenko and Fisher-Tipett up to the middle of the preceding century concerning the asymptotics for maxima, and the contributions by Balkema and de Haan on regular variation and asymptotics for exceedances in the 1970's, form the basis for statistical modelling of extremes. The targets of the inference are the estimation of probabilities of extreme events and extreme quantiles. This line of research has steadily grown from around 800 research papers between 1980 and 1989 up to 6000 papers during the last decade. Univariate modelling was quickly extended towards regression, multivariate, spatial and time series modelling. From around 2015 onwards the field has seen notable advancements while modelling techniques have become quite complex, such as with space-time extremes, multivariate and spatial models for asymptotic (in)dependence, nonstationary multivariate extremes, PCA clustering, simulation algorithms, machine learning for extremes and graphical models for extremes.

This talk will in part be based on the upcoming *Handbook on Extremes*, edited by de Carvalho, Huser, Naveau and Reich (2026), which introduces the reader to established contributions on regression, multivariate and time series extremes, and complex research results from the past decade. Important fields of applications such as climate change, financial modelling and insurance applications are highlighted.

The evolution in research on regression settings will be discussed in more detail. Finally, we will argue that coursework providing sound insight in the original historical mathematical contributions and the generalisations to established multivariate, regression and time series contributions is necessary to keep up with present research.

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