

NITheCS COLLOQUIUM: Spatial Epidemiology

Prof Inger Fabris-Rotelli (University of Pretoria)

Monday, 14 August 2023 | 16h00 – 17h00 SAST

Venue: in person* and online

* *Neelsie Cinema, Stellenbosch University*

--- Cheese and wine will be served at the venue ---

ABSTRACT

We present results of the research group SEPIMOD, a group of spatial Statisticians working on COVID-19 modelling and beyond. Wastewater-based epidemiology (WBE) has been applied widely in assessing the use of pharmaceuticals, illicit drugs, tobacco, antibiotic resistance genes, and other applications, making use of urinary and fecal markers in sewage data collected at a point representing a wastewater catchment area. This has been used to monitor the SARS-CoV-2 virus within populations across the world routinely. This presents misaligned lattice data - for collection and prediction. Irregular spatial lattices from the wastewater collection sites will be determined and combined with demographic data as well as COVID-19 case data and pipeline networks. Once an estimation model is in place, further analysis such as hotspot analysis and predictions can take place.

BIOGRAPHY

Prof Inger Fabris-Rotelli is currently an associate professor in the Department of Statistics, University of Pretoria. She has been at the Department of Statistics since 2004. She holds a PhD Mathematical Sciences, obtained in 2013, an MSc Applied Mathematics, a double BSc (Hons) in Mathematical Statistics and Applied Mathematics and a BSc Applied Mathematics.

She has a particular passion for postgraduate supervision and has supervised 56 honours and 24 Masters students to completion. She is currently supervising 6 honours, 6 Masters and 7 doctoral students. She has published 27 peer-reviewed journal articles, 21 peer-reviewed conference proceedings papers and 1 book chapter.

She was on the executive of the South African Statistical Association (SASA) from 2012 – 2018, and from 2019 sits as a director on the ICCSSA (Institute of Certificated and Chartered Statisticians in South Africa) board. She is the current president of SASA and the CEO of ICCSSA. She is also a member of ISI, SIAM and IMS internationally. Locally, she is a member of the Golden Key Society, SASA, S2A3, SAMS, ICCSSA (registered as a Chartered Statistician from 2019) GISSA, SAMSA, GASA and RLadies Johannesburg co-chair. She is also a SACNASP council member elected 2021 – 2025.

She is a member of countrywide research collaboration groups SEPIMOD (Spatial Epidemiological Modelling) and StatsNetSA. Both groups have resulted in a number of publications, postgraduate student growth and young academic development.

Her research interests are in spatial statistics and GIS, remote sensing and general image processing, including spatial epidemiology and criminology. She has an NRF Y2 rating in recognition of her research. Prof Fabris-Rotelli is an Abe Bailey Fellow (2007 tour award), and a 2018 fellow of the TUKS Young Researcher Leadership Program (TYRLP). She was selected as a BRICS Young Scientist 2020 in *Artificial Intelligence*.



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