MaSS
DST-NRF CENTRE OF EXCELLENCE IN MATHEMATICAL & STATISTICAL SCIENCES

CoE-MaSS weekly seminar series

THE DST-NRF CENTRE OF EXCELLENCE IN MATHEMATICAL AND STATISTICAL SCIENCES (CoE-MaSS) WOULD LIKE TO PRESENT A SEMINAR BY

Dr Rachid Ouifki

(Department of Mathematics and Applied Mathematics, University of Pretoria)

"Studying the effects of temperature change on the dynamics of tsetse flies and trypanosomiasis disease transmission."

Friday, 28 July 2017
10h30-11h30

Broadcast live from:
Videoconferencing Facility, 1st Floor
Mathematical Sciences Building, Wits West Campus

How to connect to this seminar remotely:
You can connect remotely via Vidyo to this research seminar by clicking on this link:
http://wits-vc.tenet.ac.za/flex.html?roomdirect.html&key=y0SSOwFsvsidbzg4qFdWXvvQtyI
and downloading the Vidyo software before the seminar.
You must please join in the virtual venue (called *"CoE Seminar Room (Wits)"* on Vidyo) strictly between **10h00-10h15**. No latecomers will be added.

Important videoconferencing netiquette:
Once the seminar commences, please mute your own microphone so that there is no feedback from your side into the virtual room. During the Q&A slot you can then unmute your microphone if you have a question to ask the speaker.

Title:

"Studying the effects of temperature change on the dynamics of tsetse flies and trypanosomiasis disease transmission."

Presenter:
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Abstract:
The aim of this talk is to present novel mathematical models to better understand the relationship between fly survival, trypanosomiasis disease transmission and temperature change, and provide tools for the optimization of impacts and costs of trypanosomiasis control.
I will start by presenting a mathematical model describing the impact of temperature on the survival dynamics of tsetse flies. I will then analyse this model both mathematically and numerically, and fit it to available data. The validated tsetse models will then be incorporated into SIR type models for the transmission of trypanosomiasis with temporal variability, to assess the impact of temperature on the disease spread in both humans and livestock. Finally, a comprehensive cost analysis will be carried out to investigate, in the light of temperature change, the impact of two interventions, namely the use of trypanocides and insecticide treated cattle.
The models may serve as the basis for climate driven simulations for future distribution of vectors and disease and assessing changing risks.