



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

## Centre for Asset Integrity Management Research Seminar: University of Pretoria 2 July 2018



To coincide with the 31<sup>st</sup> International Congress and Exhibition on Condition Monitoring and Diagnostics Engineering Management (Comadem 2018) which takes place during the week of 2 – 5 July 2018 in Pretoria, the Centre for Asset Integrity Management at the University of Pretoria is delighted to host a free research seminar on 2 July 2018 on the campus of the University of Pretoria. This seminar will showcase some of the most recent research conducted in the Centre for Asset Integrity Management in the Department of Mechanical and Aeronautical Engineering.

Delegates to Comadem 2018 who will not attend the formal workshop on 2 July are cordially invited to take advantage of this opportunity to acquaint themselves with the activities of this research centre in Pretoria and visit our structural integrity testing laboratories. The invitation is also open to any other parties interested in asset integrity management related research. We believe that this seminar should prove to be a fertile networking opportunity and an interesting research forum.

The seminar will explore issues related to fitness-for-service of physical assets while extending remaining useful life in reliable, safe and cost-effective ways. The work ranges over a broad spectrum of the asset life cycle, including design, condition monitoring, diagnostics, prognostics, and life cycle decision support.

The seminar will comprise primarily of brief presentations by C-AIM post-graduate students and staff to give a broad perspective of our work at UP. We are however very pleased to also have Prof Ming Zuo from the University of Alberta and Prof Kostis Gryllias from KU Leuven who will present keynote papers and provide international perspectives.

There will be a finger lunch in the C-AIM Labs of the Department of Mechanical and Aeronautical Engineering, where participants will have an opportunity to see some of the state-of-the art equipment in the laboratory in action, as well as discuss possible collaborative research opportunities.

You are cordially invited to attend. The seminar is free of charge, but we ask that you book with Ms Bonolo Mokoka, and if you later find that you are unable to attend, that you please advise us as soon as possible to allow us to accommodate someone else in your place. We need to finalise lunch arrangements and seats are limited to 85, so booking is essential. You are most welcome to forward the invitation to colleagues who might be interested, as long as they book too!

**RSVP:** Ms Bonolo Mokoka, C-AIM Programme Manager  
e-mail: [bonolo.mokoka@up.ac.za](mailto:bonolo.mokoka@up.ac.za)

**Please include your name and mobile number in the response so that we can send you a campus access permit.**

### Venue and time:

Engineering 1 Room 1-12, University of Pretoria, Pretoria, South Africa  
Registration from 8:00 to 8:30 on 2 July.

For a map and parking arrangements see the programme.

CENTRE FOR ASSET INTEGRITY MANAGEMENT (C-AIM)

RESEARCH SEMINAR

2 JULY 2018

ROOM 1-12, ENGINEERING BUILDING 1, UNIVERSITY OF PRETORIA HATFIELD CAMPUS

PROVISIONAL AGENDA

08:30 – 08:50	Prof Stephan Heyns	Welcome and overview of Centre for Asset Integrity Management
08:50 – 09:20	Prof Ming Zuo	Research at the Reliability Research Lab at the University of Alberta, Canada
09:20 – 09:40	Prof Johann Wannenburg	Monte Carlo simulation to estimate the plant performance outcomes under different maintenance strategies
09:40 – 10:00	Carel Louw	Remaining useful life prediction with Bayesian deep learning
10:00 – 10:20	Wihan Booyse	Unsupervised learning for critical asset failure prediction
10:20 – 10:40	TEA	
10:40 – 11:10	Prof Kostis Gryllias	Research in noise and vibration engineering at KU Leuven
11:10 – 11:30	Stephan Baggerohr and Richard Deetlefs	Generative adversarial networks in bearing fault detection
11:30 – 11:50	Peng Chen	Wind turbine gearbox condition monitoring
11:50 – 12:10	Nelis van der Walt	Pipe leak detection using artificial intelligence
12:10 – 12:20	Alain Lelo	Forecasting spare parts demand using condition monitoring information
12:20 – 12:40	Prof Schalk Kok	Response reconstruction using statistical learning approaches
12:40 – 13:00	Stephan Schmidt	Probabilistic approaches to vibration monitoring under non-stationary conditions
13:00 – 14:00	LUNCH	C-AIM Labs Rudi Kroch Acoustics Camera
14:00 – 14:20	Dr Nico Wilke	Strategies for time series prediction
14:40 – 15:00	Ifeanyi Kalu	Effect of defect geometry of localised external erosion on failure of boiler tubes”
15:00 – 15:20	Dr Dawie Diamond	Using state space equations for blade tip timing analysis and democratizing vibration analysis
15:25 – 15:30	Prof Stephan Heyns	Closing

Campus Map

<http://www.up.ac.za/about-up/article/258171/maps-directions/>

It is suggested that you park in the parkade under the Engineering 3 building.

**Remember to RSVP Ms Bonolo Mokoka for campus access permit sms.**