

SEAL MODELLING AND DESIGN






PB/2006/D-1: IMPROVED DAMAGE MODELS FOR BITUMINOUS MATERIALS (PART 2 – THIN SURFACINGS)

REVISION OF SOUTH AFRICAN PAVEMENT DESIGN METHOD

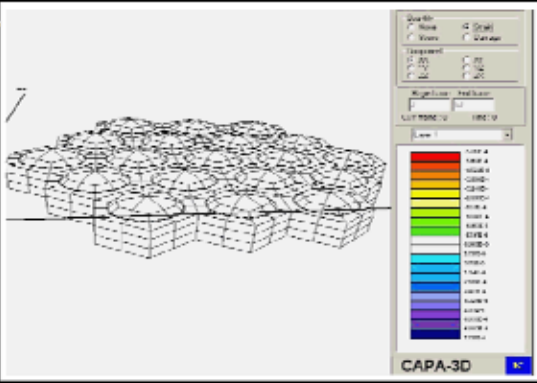
Johan Gerber
University of Stellenbosch
August 2011

Approach to modelling

- Modelling scales discussion

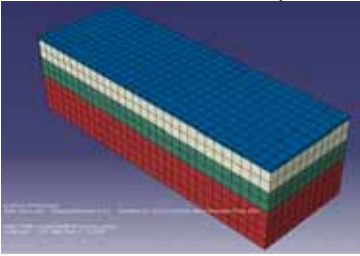
	Global	Macro	Meso	Micro	Nano
Graphical Representation					
Geometry & Material	Real road (full scale)	Individual layers of homogeneous/elastic materials	Individual particles with laboratory test properties	Single aspect of a particle is considered	Structure of individual particle

Past work (Dr Terence Milne)



Finite element modelling

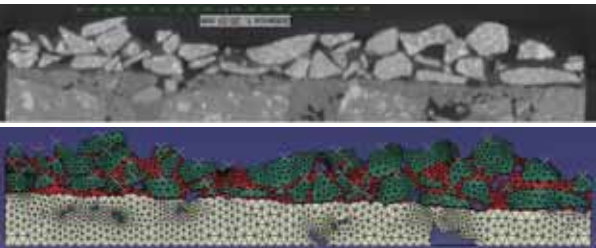
- 3D Viscoelastic macro-scale pavement



- Better mesh better output

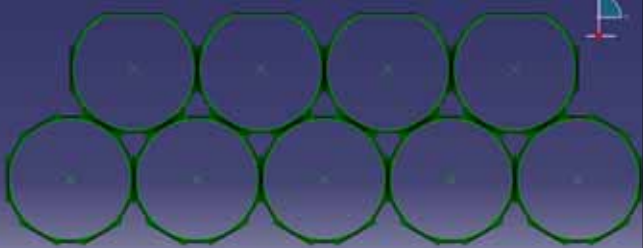
2D Modelling has been done

- 2D CT-Scan meso-scale model



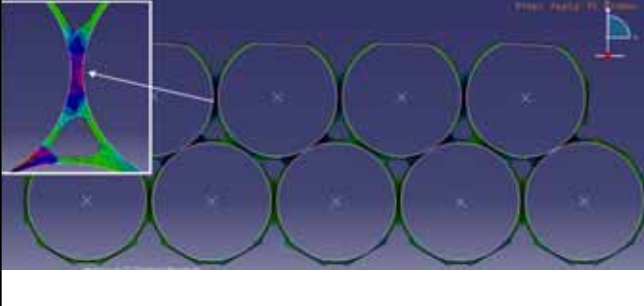
Acquiring basic modelling skills

- Ideal seal structure exercise (2 layers of stone)



Acquiring basic modelling skills

- Ideal seal structure exercise (2 layers of stone)



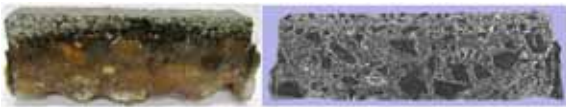
Current progress

- Granular base geometry establishment
 - Extracting in-situ samples



Current progress

- Granular base geometry establishment
 - Extracted sample & representative CT-Scan



- Reseal on G5 base

End

Thank you