

Kinetic Theory and Multiscale Phenomena: Modelling, Analysis, Computation and New Applications

- an international Workshop jointly organised by the University of Pretoria and RWTH-Aachen.

22nd - 25th January, 2016

The Stellenbosch Hotel, South Africa.

Scientific Overview:

Current scientific and technological advancements strongly demand the understanding of problems involving small and multiple scales. In such problems application of traditional approaches such as hydrodynamic theory in isolation may no longer be valid, hence the application of fundamental laws of physics, such as kinetic theory is inevitable. This provides an opportunity to develop new mathematical and computational approaches for physical laws at these scales, or at a mixture of scales. Mathematical understanding of the scaling limits from one scale to another, interweaving with the development of new multiscale computational approaches plays a critical role. We believe modelling kinetic or multiscale phenomena, their application in various fields, is a fast growing area of research. Hence a workshop focussed on the above mentioned aspects will provide a great opportunity to initiate scientific collaboration amongst participants. The idea is to bring researchers to discuss recent advances in kinetic and multiscale techniques and their application to real-world problems.

Speakers, who are leading international experts, will review some of the major topics and new trends in the area.

Special Lecture:

Klar, Axel (Kaiserslautern) - *Mean-field approaches to interacting particle systems*

Organisers: Mapundi Banda, Michael Herty.



Invited Speakers:

- Frank, Martin (RWTH-Aachen) - *Convergence of filtered spherical harmonic equations for radiation transport*
- Banasiak, Jacek (KwaZulu-Natal) - *Classical solutions of coagulation - fragmentation equations*

Participation and Funding: The workshop is intended for a diverse community of researchers. There might be funding available for a limited number of graduate students and young researchers.

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