KI-Net Workshop:

Asymptotic Preserving and Multiscale Methods for Kinetic and

Hyperbolic Problems

May 4 - 8, 2015

Department of Mathematics, University of Wisconsin-Madison

All activities in Van Vleck Hall Room 911

Conference Program

Monday, May 4

8:30--   Registration and refreshments

Chair: Shi Jin

9:30-9:45   opening remarks, Shi Jin

9:45-10:30   Jose Carrillo, Imperial College
               Non-local kinetic models for self-organized aggregations: Patterns Analysis via AP-Methods

10:30-11:15   Mohammed Lemou,   CNRS and University of Rennes 1
               A class of numerical schemes for kinetic equations in the anomalous diffusion scaling

11:15-12:00   Martin Frank, RWTH-Aachen
               Non-classical transport, fractional diffusion, and radiation in clouds

12:00-2:00   Lunch

Chair: Lorenzo Pareschi

2:00-2:45   Thierry Goudon, INRIA Sophia Antipolis Research Centre
               Some problems and simulation methods motivated by the modeling of particles laden flows

2:45-3:30   Christophe Berthon,   Universite de Nantes
               An asymptotic preserving and well-balanced scheme for a chemotaxis

model

3:30-4:00	Coffee Break
4:00-4:45	Alexander Kurganov, Tulane University
	TBA

Tuesday, May 5

8:30   Refreshments

Chair: Alina Chertock

9:00-9:45   Song Jiang, Beijing Institute of Applied Physics and Computational Mathemaitcs
An asymptotic preserving unified gas kinetic scheme for grey radiative transfer equations

9:45-10:30   Wang, Li, University of California, Los Angeles
An asymptotic preserving scheme for linear kinetic equation with fractional diffusion limit

10:30-11:00   Coffee Break

11:00-11:45   Min Tang, Shanghai Jiao Tong University
An asymptotic preserving tailored finite point method for strongly anisotropy and discontinuous diffusivity

11:45-12:30   Sebastian Noelle, RWTH-Aachen
Asymptotic preserving numerical schemes for singular hyperbolic PDE's

12:30-2:00   Lunch

Chair: Jose Carrillo

2:00-2:45   Giovanni Russo,   Università di Catania
Semi-implicit IMEX schemes for evolutionary partial differential equations

2:45-3:30   Lorenzo Pareschi, University of Ferrara
Implicit-explicit linear multistep methods for kinetic equations

3:30-4:00   Coffee break

4:00-4:45   Jian-Guo Liu, Duke University
                TBA

4:45-5:30   Frederic Coquel, Ecole Polytechnique Paris
                TBA

6:30-8:30   **Banquet at Soga Chinese Restaurant, 508 State Street**

Wednesday, May 6

8:30   Refreshments

Chair: Pierre Degond

9:00-9:45   Bjorn Engquist, University of Texas-Austin
                Coupling particle, kinetic and fluid models by HMM
9:45-10:30   Jingwei Hu, Purdue University
                A numerical scheme for the Boltzmann equation with uncertainty efficient in the fluid regime
10:30-11:00 Coffee Break
11:00-11:45 Pierre Degond, Imperial College
                Asymptotic-preserving schemes for complex fluids
11:45-12:30 Bokai Yan, University of California, Los Angeles
                Monte Carlo methods with negative particles

12:30-   Lunch and free afternoon

Thursday, May 7

9:00   Refreshments

Chair: Song Jiang
9:30-10:15   Nicolas Seguin, University of Paris VI
                Boundaries and interfaces in asymptotics from hyperbolic systems
10:15-11:00 Qin Li, California Institute of Technology
                Numerical methods for linear half-space kinetic equations
11:00-11:45 Benjamin Seibold, Temple University
                Benefits of staggered grids and exponential time integrators in radiation moment methods

11:45-1:30   Lunch

Chair: Li, Qin

1:30-2:15   Francis Filbet, Université Claude Bernard de Lyon
                High order semi-implicit schemes for kinetic equations
2:15-3:00   Alina Chertock, North Carolina State University
                Asymptotic preserving simulations of kinetic systems for chemotaxis

Friday, May 8

8:30   Refreshments

Chair: Giovanni Russo

9:00-9:45   Friedrich Ropke, Heidelberg Institute for Advanced Studies
               *Modeling low Mach number flows in astrophysical systems with
               preconditioned compressible schemes*
9:45-10:30   Christian Klingenberg, Würzburg University
               Progress in well-balanced methods for the Euler equations
10:30-11:00   Coffee Break
11:00-11:45   Gabriella Puppo, Universita' Insubria
               Asymptotic preserving boundary conditions for kinetic models
11:45-12:30   Maria Lukacova, Universität Mainz
               *Well-balanced asymptotic preserving schemes for singular limits in
               some geophysical flows*

12:30-2:00   Lunch

Chair: Thierry Goudon

2:00-2:45   Fengyan Li, Rensselaer Polytechnic Institute
               *High order asymptotic preserving IMEX-RK DG methods for some
               kinetic models*
2:45-3:30   Jianfeng Lu, Duke University
               Bloch dynamics and Berry phase