October 5, 2006

07pims009: Discrete Boltzmann Equation for Microfluidics

Organizers:

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Boghosian, Bruce, Tufts University, bruce.boghosian@tufts.edu

Location:

Banff

PIMS Sites:

University of Calgary

Objectives:

The objective of this conference/forum is to bring together experts from around the world to discuss the potential usefulness nad implementation of the lattice boltzmann equation for micro-fluid hydrodynamics. Topics covered at the DSFD series of meetings include lattice gas automata, the lattice Boltzmann equation, dissipative particle dynamics, smoothed-particle hydrodynamics, direct simulation Monte Carlo, stochastic rotation dynamics, molecular dynamics, and hybrid methods.
There will be sessions on advances in both theory and computation, on engineering applications of discrete fluid algorithms, and on fundamental issues in statistical mechanics, kinetic theory, and hydrodynamics and their applications in Micro, Nano and Multiscale Physics for emerging technologies. Other topics of interest also include experimental work on interfacial phenomena, droplets, free-surface flow, micro and nanofluidics.

Comments:

This is the 16th series of the conference in discrete simulation of fluid dynamics. This conference has an established history dated back at 1986 (the first conference was held at Los Alamos). The first conference/workshop started with the mathematics of recovering the Navier Stokes Equation from the discretized Boltzmann equation (LBM). In recent years, lattice boltzmann equation has been widely used as alternative for fluid hydrodynamics. However, it remains an interesting alternative to use LBM for microfluidics. The unique features of this proposal is to bring together scientists from across the field, including mathematics, physics, engineering and chemistry, for discussion of the discretized boltzmann equation for both experimentalists and theoreticans.

Audience:

The intended audience of this conference is for scientists in Physics, Mathematics and Engineering. Students are also encouraged to participate in the conference resulting from past history of conference series.

Participants:

List of participants and invited speakers:

 Bruce Boghosian, Tufts University, USA
 Jean-Pierre Boon, Université Libre, Brussels
 Nikolai Brilliantov Potsdam University
 Hudong Chen, Exa Corp. USA
 Shiyi Chen, Johns Hopkins University, USA and Beijing, China
 Bastien Chopard, University of geneva, Switzerland
 Peter Coveny, University College London, UK
 Michel Droz, University of Geneva, Switzerland
 Takaji Inamuro, Kyoto University, Japan
 Ray Kapral, University of Toronto, Canada
 Sauro Succi, CNR, Italy

Amount Requested:

10320.00

Expenditures:

Proposed Budget based on 80 delegates:

Reception $2,000

Proceedings publications
Conference package $10,000
Excursion $10,000
Banquet $3,920
2 breaks/dayx5days $4,400
Room rental $400/dayx5days $2,000
AV charge $600/dayx5days $3,000

Invited 5 speakers ($2,500x5) $12,500
Committee members local exp $2,000

Total $49,820

Income:

Anticipated income:

Registration: $450x80 $36,000

Schulich School of Engineering $1,000 (expected)
University of Calgary $1,000 (expected)
Harvard Apparatus Canada $500   (confirmed)
COMSOL $1,000 (in negotiation)

Total $39,500

Selected Dates:

Mon, July 23, 2007
Fri, July 27, 2007