2nd IMPA-InterPore Conference on Porous Media: Conservation Laws, Numerics and Applications

IMPA (Auditorium 1, second floor)
Rio de Janeiro, October 16 - 19, 2016

SCIENTIFIC PROGRAM

Sunday, October 16

13:00 **REGISTRATION (room 105a, first floor)**

14:10-14:30 **OPENING (Auditorium 1, second floor)**

Session chair: Dan Marchesin

14:30-15:00 **Hans Bruining (TU Delft, The Netherlands)**
Comparison of capillary pressure and relative permeability obtained with network models and percolation theory.

15:00-15:30 **Marcio Arab Murad (LNCC)**
A new class of methods for upscaling coupled flow and deformation in disordered nanoporous media

Coffee break

Session chair: Grigori Chapiro

16:00-16:30 **Pablo Castañeda Rivera (ITAM, México)**
Stability of WAG injection of three phase-flow in virgin reservoirs under general permeabilities

16:30-17:00 **Panters Rodríguez Bermúdez (UFF)**
Vertical two-phase flow under the action of a Dirac delta source in a porous medium

Monday, October 17

Session chair: Moritz Reintjes

09:30-10:00 **Aparecido Souza (UFCG)**
Three-phase fluid displacement in a porous media

10:00-10:30 **Jesus Carlos da Mota (UFG)**
Multiple traveling waves combustion for a two-phase flow through a porous medium

Coffee break / Conference photo

Session chair: Adolfo Puime

11:00-11:30 **Mary Pugh (U. Toronto)**
Special Solutions in Smectic Electroconvection

11:30-12:00 **Grigori Chapiro (UFJF)**
Traveling wave solutions describing combustion waves in porous media

Lunch

Session chair: Hans Bruining

14:00-14:30 **Alex Hansen (NTNU, Norway)**
New Conservation Laws in Immiscible Two-Phase Flow in Porous Media

14:30-15:00 **Aline Cristina da Rocha (LNCC)**
A new model for flow in shale-gas reservoirs including natural and hydraulic fractures: application to well tests

15:00-15:30 **Eduardo Cardoso de Abreu (U. Campinas, IMECC)**
A unified computational and analytic approach on the asymptotic behavior of relaxation balance laws with applications in porous media flow models

Coffee break

16:00-17:30 **POSTER SESSION**

Ali Taani (Aqaba U. College, Jordan)
Monte Carlo simulation of 3-D Hamiltonian systems with dynamical interaction in axisymmetric gravitational potential

Andres Valdez (LNCC)
On Multiscale Methods to characterize the permeability of porous media

Angel Enrique Ramirez Gutierrez (IMCA, Peru)
Numerical simulation of an in-situ combustion model formulated as mixed complementarity problem

Anna Radovanovic (UENF)
Analytical solution for the flow of a Carreau type non-Newtonian fluid in porous media

Arthur Miranda do Espirito Santo (U.Campinas, IMECC)
A finite volume method based on a Lagrangian-Eulerian principle for solving hyperbolic conservation laws

Ciro Javier Díaz Penedo (U.Campinas, IMECC)
Combining the spectral method and the mixed and hybrid finite element method to corroborate the effectiveness of a renormalization process applied to the KPZ model

Edwin Marcos Maravi Percca (UFJF)
A variational approach to the Riemann problem

Ismael de Souza Ledoino (LNCC)
Algorithms for Riemann Problem Solution

Jardel Vieira (U.Campinas, IMECC)
On the numerical computation of nontrivial solutions of two-phase flow in porous media linked a pseudo-parabolic equation with dynamic capillary pressure

Johannes Bruining (TU Delft, The Netherlands)
The effect of wetting on the relative permeability behavior and oil recovery

John Alexander Pérez Sepúlveda (U.Campinas, IMECC)
A Lagrangian-Eulerian approximation method for balance laws

Juan Gabriel Galeano Delgado (U.Campinas, IMECC)
Well-posedness and blow-up of global solutions for a nonlinear transport equation with nonlocal flux and measure data

Luis Antonio Lopez Pena (TU Delft, The Netherlands)
A network model for the biofilm growth evolution in porous media and its effects on permeability and porosity

Luis Fernando Lozano G. (IMPA)
The unusual effects of capillary pressure to solutions of Riemann problems

Marcos Vinícius Cândido Henriques (UFRGN)
Mesh generation for modeling flow through fractal porous media: a potential function approach

Pablo J. Antuna (U. Católica N.S. Asunción, Paraguay)
Traveling Waves With Intermediate Singular Points in Systems of Balance Laws

Thiago Alves de Souza (UFRRJ-IT)
Burgers equation and conservation law

17:30 **COCKTAIL** (2nd floor)

Tuesday, October 18

Session chair: Eduardo Abreu

09:30-10:00 **Hermenegildo Borges de Oliveira (U. Lisboa, Portugal)**
On a turbulent k-epsilon model with applications in porous media

10:00-10:30 **Igor Mozolevski (UFSC)**
Goal-oriented a posteriori error estimates and mesh adaptation for two-phase problems

Coffee break / POSTERS

Session chair: Igor Mozolevski

11:00-11:30 **Amaury Alvarez Cruz (IMPA)**
The Riemann solution for low salinity carbonated waterflooding

11:30-12:00 **Paola Cunha Ferraz (U.Campinas, IMECC)**
A multiscale approach for pressure-velocity two-phase flow in high-contrast porous media

12:00-12:30 **Wanderson Jose Lambert (UNIFAL-MG)**
Mathematical theory of two phase flow and chemical species geochemical flow

Lunch

15:00-18:00 Boat trip: Guanabara Bay / Copacabana (departing from Bar Urca)

Wednesday, October 19 (CHANGED TO AUDITORIUM 3)

Session chair: Marcio Murad

09:30-10:00 **Moritz Reintjes (IMPA)**
Constrained systems of conservation laws

10:00-10:30 **Josué dos Santos Barroso (LNCC)**
A new sequential computational method for upscaling flow and geomechanics in nonlinear elastic jointed rocks

Coffee break / POSTERS

Session chair: Pablo Castaneda

11:00-11:30 **Leonardo Andrés Poveda Cuevas (IME, U. São Paulo)**
Localized harmonic characteristic basis functions for MsFEM

11:30-12:00 **Vitor Matos (U. Porto, Portugal)**
A class of conservation laws arising in flow in porous media

Lunch

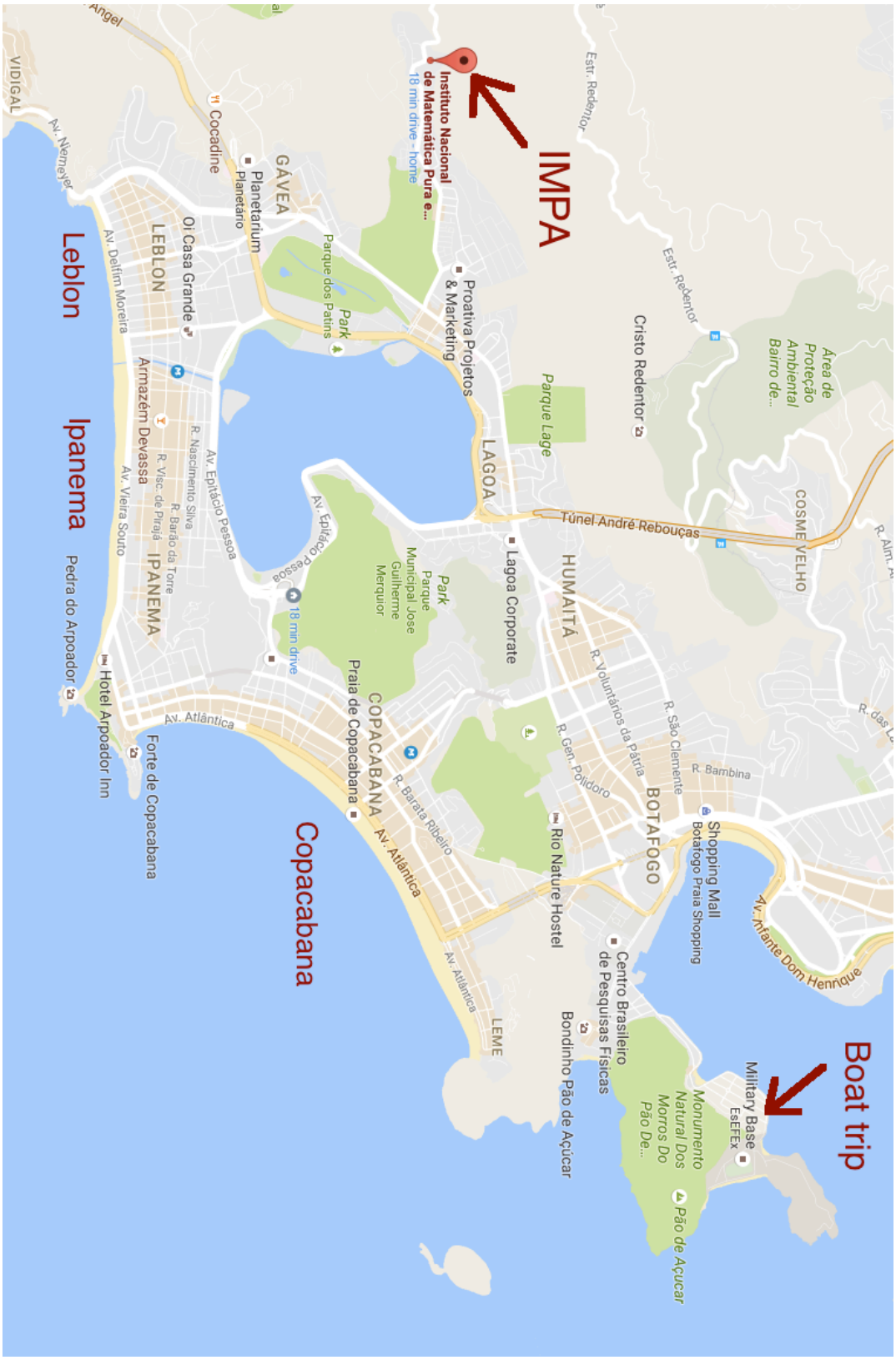
Session chair: Vitor Matos

14:00-14:30 **Cesar de Souza Eschenazi (UFMG)**
Wave manifold decomposition for a system of two conservation laws

14:30-15:00 **Hans Bruining / Bernhard Meulenbroek (TU Delft)**
Characteristic times for transport and reaction

15:00-15:30 **Dan Marchesin (IMPA)**
Riemann problems: what for?

15:30-15:40 **CLOSING**


IMPA
Instituto Nacional de Matemática Pura e...
18 min drive – home
Boat trip
Military Base
EsEFEx
Leblon
Ipanema
Copacabana
Proativa Projetos & Marketing
Lagoa Corporate
Cristo Redentor
Túnel André Rebouças
Shopping Mall
Botafogo Praia Shopping
Rio Nature Hostel
Centro Brasileiro de Pesquisas Físicas
Bondinho Pão de Açúcar
Pão de Açúcar
Hotel Arpoador Inn
Forte de Copacabana
Pedra do Arpoador
Planetarium
Oi Casa Grande
Armazém Devassa
Cocadine
Parque dos Patins
Parque Lage
Parque Municipal Jose Guilherme Merquior
18 min drive
Av. Atlântica
Praia de Copacabana
LAGOA
HUMAITÁ
BOTAFOGO
COPACABANA
IPANEMA
LEBLON
GÁVEA
LEME
COSME VELHO
Área de Proteção Ambiental Bairro de...
Monumento Natural Dos Morros Do Pão De...
Av. Infante Dom Henrique
R. Bambina
R. São Clemente
R. Voluntários da Pátria
R. Gen. Polidoro
R. Barata Ribeiro
Av. Epitácio Pessoa
R. Nascimento Silva
R. Barão da Torre
R. Visc. de Pirajá
Av. Vieira Souto
Av. Delfim Moreira
Av. Niemeyer
VIDIGAL
Estr. Redentor
R. Das L...
R. Alm. ...