

## 1st IMPA-INTERPORE

# Workshop on Porous Media

IMPA, Rio de Janeiro, Brazil

October 19-21, 2014

*Auditorium 3 - second floor*

### Organizing Committee

Alexei A. Mailybaev

IMPA, Rio de Janeiro

Dan Marchesin

IMPA, Rio de Janeiro

Aparecido J. de Souza

Universidade Federal de Campina Grande

## SCIENTIFIC PROGRAM

### SUNDAY 19/OCT

<b>12:30-14:00</b>	<b>REGISTRATION / BRUNCH</b>
<b>14:00-14:10</b>	<b>OPENING</b>
	Session chair: Hans Bruining
<b>14:10-15:10</b>	On the scale dependency of nonequilibrium flow and contaminant transport processes <a href="#">MARTINUS TH. VAN GENUCHTEN (UFRJ, Rio de Janeiro)</a>
<b>15:10-15:40</b>	Hysteretic enhancement of carbon dioxide trapping in deep aquifers <a href="#">FREDERICO FURTADO (University of Wyoming, USA)</a>
<b>15:40-16:00</b>	<b>COFFEE BREAK</b>
	Session chair: Adolfo P. Pires
<b>16:00-16:30</b>	Combustion for enhanced recovery of light oil at medium pressures <a href="#">NEGAR K. GARGAR (TU Delft, The Netherlands)</a>
<b>16:30-17:00</b>	Recovering porous density distribution of activated carbon samples <a href="#">AMAURY C. ALVAREZ (Oceanology Institute, C. Habana, Cuba)</a>
<b>17:00-17:30</b>	A spectral decomposition strategy for decoupling an integro-differential model of expansive porous media <a href="#">SAULO P. OLIVEIRA (Universidade Federal do Paraná, Curitiba)</a>

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## MONDAY 20/OCT

	Session chair: Frederico Furtado
<b>09:20-10:00</b>	Coupled hydro-geomechanical computational models of pre-salt reservoirs <a href="#">MARCIO A. MURAD (LNCC, Petrópolis)</a>
<b>10:00-10:30</b>	Geochemical modeling of water flooding oil in calcite reservoirs at high carbon dioxide pressure <a href="#">HANS BRUINING (TU Delft, The Netherlands)</a>
<b>10:30-10:50</b>	<b>COFFEE BREAK</b>
	Session chair: Grigori Chapiro
<b>10:50-11:20</b>	Wave sequences for solid fuel adiabatic in-situ combustion in porous media <a href="#">APARECIDO J. DE SOUZA (Universidade Federal de Campina Grande)</a>
<b>11:20-11:50</b>	Combustion fronts in a porous medium with two parallel layers <a href="#">JESUS CARLOS DA MOTA (Universidade Federal de Goiás)</a>
<b>11:50-12:20</b>	Unusual thermal effects in Riemann solutions for two-phase flow in porous media <a href="#">JULIO DANIEL SILVA (University of Calgary, Canada)</a>
<b>12:20-14:00</b>	<b>LUNCH</b>
	Session chair: Dan Marchesin
<b>14:00-15:00</b>	Front tracking for petroleum reservoirs: nonlinearity vs. dispersion and the role of heterogeneity and scaleup <a href="#">JAMES GLIMM (Stony Brook University, USA)</a>
<b>15:00-15:30</b>	Recent developments in the approximation of high-contrast flow problems <a href="#">JUAN GALVIS (Universidad Nacional de Colombia)</a>
<b>15:30-16:00</b>	Using a partially-linear Koval's type model to study the flow of supercritical CO <sub>2</sub> , water and oil in porous media: pressure-driven and buoyancy-driven flows <a href="#">PANTERS RODRÍGUEZ-BERMÚDEZ (Universidade Federal Fluminense)</a>
<b>16:00-16:20</b>	<b>COFFEE BREAK</b>
	Session Chair: Fabio P. dos Santos
<b>16:20-16:50</b>	Predictive modeling of subsurface flows <a href="#">FELIPE PEREIRA (The University of Texas at Dallas, USA)</a>
<b>16:50-17:20</b>	Numerical simulation of reservoir-wellbore coupled flow <a href="#">ADOLFO P. PIRES (Universidade Estadual do Norte Fluminense)</a>
<b>17:20-17:50</b>	Computational methods for simulation of porous media transport phenomena <a href="#">EDUARDO ABREU (IMECC/UNICAMP, Campinas)</a>
<b>17:50-18:20</b>	<b>BRAZILIAN CHAPTER OF INTERPORE: KICKOFF MEETING</b>
<b>18:20</b>	<b>WORKSHOP COCKTAIL</b>

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## TUESDAY 21/OCT

Session chair: Juan Galvis

**09:20-10:00** Advances in mathematical modeling of turbulent transport in porous media  
MARCELO J.S. DE LEMOS (ITA, São José dos Campos)

**10:00-10:30** The Mathematical Theory of Three-Phase Porous Medium Flow  
BRADLEY PLOHR (Los Alamos National Laboratory, USA)

### 10:30-11:20 POSTERS / COFFEE BREAK

Asymptotic approximation analysis for counterflow combustion in porous media  
GRIGORI CHAPIRO (UFJF, Juiz de Fora)

The random Riemann solution for the Buckley-Leverett equation  
DUILIO CONCEIÇÃO (UFRRJ, Rio de Janeiro)

The wave curve method: numerical implementation  
DAN MARCHESIN (IMPA, Rio de Janeiro)

Semi-analytical solution for microwave assisted water injection in porous media  
PAVEL Z. SEJAS PAZ (UFJF, Juiz de Fora)

Numerical solution of in-situ combustion model using finite element method combined with nonlinear complementarity algorithm  
WESLEY S. PEREIRA (UFJF, Juiz de Fora)

Session chair: Max Kokubun

**11:20-11:50** Investigation for the recovery of medium-heavy oil by gas injection  
PACELLI L.J. ZITHA (TU Delft, The Netherlands)

**11:50-12:20** Air injection rate effects in light oil recovery  
FABIO PEREIRA DOS SANTOS (IMPA, Rio de Janeiro)

### 12:20-14:00 LUNCH

Session chair: Amaury C. Alvarez

**14:00-14:30** On porous media flows for three components and two phases  
VITOR M.M. MATOS (Universidade do Porto, Portugal)

**14:30-15:00** Incorporating topography into soil hydraulic parameter scaling algorithms  
RAGHAVENDRA B. JANA (King Abdullah University of Science and Technology, KSA)

**15:00-15:30** How to predict soil water holding capacity using physically based equations?  
WENCESLAU TEIXEIRA (Embrapa Solos, Rio de Janeiro)

**15:30-16:00** Singularity in the combustion wave profile for porous media with liquid fuels  
ALEXEI A. MAILYBAEV (IMPA, Rio de Janeiro)

### 16:00-16:10 CLOSING