

## **Sunday, June 22, 2014**

17:00 – 19:00	Conference Check-in
18:00 – 19:00	Reception
19:00 – 20:30	Dinner
20:30 – 21:30	<b>Opening Keynote Talk - Challenges and prospects of hydrocarbons recovery from the worldwide shale oil, condensate, and gas reserves: Key issues, proper modeling, critical advancements, and impact of fracking technology</b> Faruk Civan, University of Oklahoma, USA

### **Notes**

- Taping and photography of any presentations are prohibited.
- Speakers – Please leave at least 5 minutes for questions and discussion.
- Please do not smoke at any conference functions.
- Turn your cellular telephones to vibrate or off during technical sessions.
- Please write your name on your program so that it can be returned to you if it is lost.
- After the conference, ECI will send an updated participant list to all participants. Please check your listing, and if it needs updating, you may correct it at any time by logging into your ECI account.

## **Monday, June 23, 2014**

- 07:00 – 08:00 Breakfast
- 08:00 – 08:50 **Keynote – Nonlinear natural convection in porous media and the collapse of the wave function**  
Peter Vadasz, Northern Arizona University, USA
- ORAL SESSION 1: Natural and forced convection in porous media (I)**  
Session Chair: **Faruk Civan**
- 08:50 – 09:15 **The multi-commodity heat hump dryer**  
Lorcelie B. Taclan, Adventist University of the Philippines, Philippines
- 09:15 – 09:40 **Sensitivity analysis of effective thermal conductivity of open-cell ceramic foams using a simplified model based on detailed structure**  
Miguel Mendes, TU Bergakademie Freiberg, Germany
- 09:40 – 10:05 **Thermal properties of highly porous fibrous ceramics**  
Jingjing Sun, Aerospace Research Institute of Materials and Processing Technology, Beijing, China
- 10:05 – 10:30 **Droplet impact and penetration on series of parallel tubes**  
Nasser Ashgriz, University of Toronto, Canada
- 10:30 – 11:00 Coffee Break
- ORAL SESSION 2: Material processing applications**  
Session Chair: **Peixue Jiang**
- 11:00 – 11:25 **Fabrication and microstructural characterization of silica aerogel by aging additional pressurization**  
Xiaoyan Wang, Aerospace Research Institute of Material and Processing Technology, Beijing, China
- 11:25 – 11:50 **The preparation and properties of novel structural carbon foams derived from different mesophase pitches**  
Liqiong Yu, Aerospace Research Institute of Materials and Processing Technology, Beijing, China
- 11:50 – 12:15 **Effect of helium-3 formation on the thermal decomposition of uranium tritide particle beds**  
Ryan Keedy, Sandia National Laboratories, USA
- 12:15 – 12:40 **On the influences of the thermal boundary condition at porous-fluid interface upon the Nusselt number in a pipe partially filled by a porous material**  
Nader Karimi, University of Glasgow, Scotland
- 12:40 – 14:10 Lunch

**Monday, June 23, 2014 (continued)**

**ORAL SESSION 3: Industrial and environmental heat transfer and flow in porous media (I)**

Session Chair: **Peter Vadasz**

- 14:10 – 14:35      **An investigation of porous inserts in electronic coolings**  
Fatemeh Tavakkoli, University of California, Riverside, USA
- 14:35 – 15:00      **Improved permeability prediction for heterogeneous porous media by bundle-of-leaky-tubes with cross-flow model**  
Faruk Civan, The University of Oklahoma, USA
- 15:00 – 15:25      **Fate and transport of nanohybrids in subsurface media for oil field applications**  
Ben Shiau, The University of Oklahoma, USA
- 15:25 – 15:50      **Porous structures used as flameproof pressure relief elements a novel approach of flameless venting**  
Julia Hornig, Physikalisch-Technische Bundesanstalt (PTB), Germany
- 15:50 – 16:15      **Effective solid-to-fluid heat transfer coefficient in EGS reservoirs**  
Xiao-Long Ouyang, Tsinghua University, China
- 16:15– 16:40      **Particles migrating and plugging mechanism in loosen sandstone heavy oil reservoir and the strategy of production with moderate sanding**  
Yiting Xie, State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, China
- 16:40 – 19:30      *ad hoc* sessions / free time
- 19:30 – 21:00      Dinner
- 21:00 – 22:30      Poster Session (with beer and wine)

**Tuesday, June 24, 2014**

- 07:00 – 08:00 Breakfast
- 08:00 – 08:50 **Keynote Talk – Improvements on the local thermal non-equilibrium model in porous media**  
Pei-Xue Jiang, Tsinghua University, China
- ORAL SESSION 4: Natural and forced convection in porous media (II)**  
Session Chair: **Kevin Anderson**
- 08:50 – 09:15 **Mixed convection in horizontal channels heated below with external heat losses on upper plate and partially filled with aluminum foam**  
Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione, Seconda Università degli Studi di Napoli, Italy
- 09:15 – 09:40 **Mixed convection in a channel with an open cavity filled with porous media in local thermal non-equilibrium**  
Oronzio Manca, Dipartimento di Ingegneria Industriale e dell'Informazione, Seconda Università degli Studi di Napoli, Italy
- 9:40 – 10:05 **On the velocity distribution in a microscopic porous medium**  
Maciej Matyka, University of Wrocław, Poland
- 10:05 – 10:35 Coffee Break
- 10:35 – 11:00 **Miscible density driven convective mass transfer process analysis based on Entransy dissipation theory**  
Rui-Na Xu, Tsinghua University, China
- ORAL SESSION 5: Experimental and measuring techniques**  
Session Chair: **Robin Gerlach**
- 11:00 – 11:25 **Experimental analysis of air vortex Impingement through porous screens**  
Fatemeh Hassanipour, University of Texas at Dallas, USA
- 11:25 – 11:50 **Experimental evaluation of wellbore cement- formation shear bond strength in presence of drilling fluid contamination**  
Mileva Radonjic, Louisiana State University, USA
- 11:50 – 12:15 **Effect of temperature dependent viscosity on natural convective boundary layer flow over a horizontal plate embedded in a nanofluid saturated porous medium**  
Shobha Bagai, University of Delhi, India
- 12:15 – 12:40 **Thermohydraulics of Porous Heat Exchangers: Full or Partial Blockage?**  
Kamel Hooman, University of Queensland, Australia
- 12:40 – 13:05 **Quantification of effect of convergence in porous media flow**  
Srinivas Pasupuleti, Indian School of Mines, India
- 13:05 – 14:35 Lunch

**Tuesday, June 24, 2014 (continued)**

**ORAL SESSION 6: Bio transport in porous media**

Session Chair: **Kamel Hooman**

- 14:35 – 15:00      **Pore scale modeling of the microbially induced CaCO<sub>3</sub> precipitation process**  
Robin Gerlach, Montana State University, USA
- 15:00 – 15:25      **Concentration of bioethanol and dehydration of organic solvents by porous membranes**  
Tadashi Uragami, Kansai University, Japan
- 15:25 – 15:50      **A model for magnetic drug targeting in a permeable microvessel with spherical porous carrier particles**  
Precious Sibanda, University of KwaZulu-Natal, South Africa
- 15:50 – 16:15      **Multilayer minichannel heat sinks: The effect of porosity scaling on pressure drop**  
Fatemeh Hassanipour, University of Texas at Dallas, USA
- 16:15 – 16:40      **Numerical simulation of pressure pulse decay experiment on crushed low permeability rocks considering Klinkenberg effect and gas absorption/desorption**  
Bo Zhou, Tsinghua University, China
- 16:40 – 17:05      **Fluid flows through unsaturated porous media: An alternative simulation procedure**  
Maria Martins-Costa, Universidade Federal Fluminense, Brazil
- 17:05 – 17:30      **Experimental study of water retention properties of a high performance concrete with small sliced samples**  
Qier Wu, Université Lille Nord de France, France
- 17:30– 19:30      *ad hoc* sessions / free time
- 19:30 – 21:00      Dinner
- 21:00 – 22:30      Poster session and social hour

**Wednesday, June 25, 2014**

- 07:00 – 08:00 Breakfast
- 08:00 – 08:50 **Keynote Talk – Biofilm-mediated mineral precipitation technology – from the microscale to the field-scale**  
Robin Gerlach, Montana State University, USA
- ORAL SESSION 7: Combined heat and mass transfer in porous media (I)**  
Session Chair: **Fatemeh Hassanipour**
- 08:50 – 09:15 **Theoretical investigation of the influences of thermal boundary conditions upon the heat transfer characteristics in a channel partially filled by a porous material**  
Nader Karimi, University of Glasgow, Scotland
- 09:15 – 09:40 **HYDRA: Macroscopic modeling of hybrid ablative thermal protection system**  
Gregory Pinaud, Airbus Defense and Space, France
- 09:40 – 10:05 **Phase change with local thermal non-equilibrium in a two-phase mixture model**  
Franz Lindner, Universität der Bundeswehr München, Germany
- 10:05 – 10:35 Coffee Break
- 10:35 – 11:00 **Effect of variable porosity on composite heat transfer in a boundary layer flow**  
Puttabasavsetty Nagaraju, Vijaya College, India
- 11:00 – 11:25 **The use of expandable casing technology as a new remediation tool for micro-annular gas migration**  
Mileva Radonjic, Louisiana State University, USA
- ORAL SESSION 8: Particle transport and deformable porous bodies**  
Session Chair: **Mileva Radonjic**
- 11:25– 11:50 **Studies on permeability properties and particle capture efficiencies of porous SiC ceramics processed by oxide bonding technique**  
Atanu Dey, Central Glass & Ceramic Research Institute, India
- 11:50 – 12:15 **MRI evidence of nanoparticles migration in drying porous media**  
Emmanuel Keita, Université Paris-Est, Laboratoire Navier, France
- 12:15 – 12:40 **Fractional diffusion model for transport through porous media**  
Nadeem Malik, King Fahd University of Petroleum and Minerals, Saudi Arabia
- 12:40 – 14:10 Lunch

**Wednesday, June 25, 2014 (continued)**

**ORAL SESSION 9: Advances in numerical techniques (I)**

Session Chair: Akira Nakayama

- 14:10 – 14:35      **Performance comparison of the finite-difference, practical-finite-analytic, differential-quadature, and differential-cubature methods for solving porous media immiscible fluids transport**  
Faruk Civan, University of Oklahoma, USA
- 14:35 – 15:00      **Effects of non-Darcy flow and pore proximity on gas condensate production from nanopore unconventional resources**  
Jeffrey Callard, University of Oklahoma, USA
- 15:00 – 15:25      **Transport in groundwater aquifers: Simplifying models using natural stratigraphy**  
Robert McKibbin, Massey University, New Zealand
- 15:25 – 15:50      **Modeling and analysis of transport in the resting mammary glands**  
Ana Quezada, University of California, Riverside, USA
- 15:50 – 16:15      **CO<sub>2</sub> migration in the geological formation**  
Shujuan Wang, University of California, Riverside, USA
- 16:15 – 19:30      *ad hoc* sessions / free time
- 19:30                Dinner on own

**Thursday June 26, 2014**

- 07:00 – 08:00 Breakfast
- 08:00 – 08:50 **Keynote Talk – Novel convective heat transfer enhancement in channels and tubes filled with nanofluid-saturated metal foams**  
Akira Nakayama, Shizuoka University, Japan
- ORAL SESSION 10: Combined heat and mass transfer in porous media ( II )**  
Session Chair: **Shirley Abelman**
- 08:50 – 09:15 **Three dimensional heat and mass transfer in capillary evaporator**  
Laetitia Mottet, Institut de Mécanique des Fluides de Toulouse, France
- 09:15 – 09:40 **Influence of thermal radiation from solid phase upon the local thermal non-equilibrium condition in a porous medium**  
Nader Karimi, University of Glasgow, Scotland
- 09:40 – 10:05 **Heat flow from a buried cylindrical tank partially submerged in groundwater**  
Robert McKibbin, Massey University, New Zealand
- 10:05 – 10:35 Coffee Break
- 10:35 – 11:00 **Investigation of transpiration cooling with local thermal non-equilibrium model: Effects of different thermal boundary conditions at the porous-fluid interface**  
Zheng Huang, Tsinghua University, China
- ORAL SESSION 11: Advanced mathematical approaches to the modeling of porous media**  
Session Chair: **Nasser Ashgriz**
- 11:00 – 11:25 **Effective permeability upscaling from heterogenous to homogenous porous media**  
Mehmet Cicek, University of Oklahoma, USA
- 11:25 – 11:50 **Research of particles migrating mechanism in loosen sandstone reservoir and the strategy of moderate sanding**  
Zhaohui Chen, SWPU
- 11:50 – 12:15 **Pressure transient characteristics of multi-stage fractured horizontal wells in shale gas reservoirs with consideration of multiple mechanisms**  
Jingjing Guo, Southwest Petroleum University, China
- 12:15 – 13:45 Lunch



**Thursday, June 26, 2014 (continued)**

**ORAL SESSION 12: Advances in numerical techniques ( II )**

Session Chair: **Robert McKibbin**

- 14:10 – 14:35      **Modified Rhie-Chow / PISO algorithm for collocated variable finite porous media flow solvers**  
Markus Nordlund, Philip Morris Products SA, Switzerland
- 14:35 – 15:00      **Turbulence in porous media: Some fundamental questions addressed by DNS solutions**  
Marc-Florian Uth, Hamburg University of Technology, Germany
- 15:00 – 15:25      **Wall thickness optimization of a transpiration-cooled sharp leading edge at atmospheric re-entry**  
Christian Dittert, German Aerospace Center, Germany
- 15:25 – 15:50      **Numerical solutions of non-linear fractional transport models in unconventional hydrocarbon reservoirs using variational iteration method**  
Nadeem Malik, King Fahd University of Petroleum and Minerals, Saudi Arabia
- 15:50 – 16:15      **Comparison of volume-average simulation and pore-scale simulation of thermal radiation and natural convection in high temperature packed beds**  
Rui-Na Xu, Tsinghua University, China
- 16:15 – 16:40      **Onset of double diffusive reaction-convection in an anisotropic porous layer with internal heat source**  
Sravan Nayeka Gaikwad, Gulbarga University, India
- 16:40– 19:30      *ad hoc* sessions / free time
- 19:30 – 21:30      Banquet

**Friday June 27, 2014**

- 07:00 – 08:00 Breakfast
- 08:00 – 08:50 **Keynote Talk –From Unsaturated to Saturated Flows through Porous Media via Mixtures Theory**  
M.L. MARTINS-COSTA , Univerdidade Federal Fluminense
- ORAL SESSION 13: Industrial and environmental heat transfer and flow in porous media ( II )**  
Session Chair: **Oronzio Manca**
- 08:50 – 09:15 **Use of liquid pressure-pulse decay permeameter in experimental evaluation of permeability in wellbore cement under geopressured geothermal conditions**  
Mileva Radonjic, Louisiana State University, USA
- 09:15 – 09:40 **Numerical Solution of Burgers' equation arising in Longitudinal Dispersion Phenomena in Fluid Flow through Porous Media by Crank-Nicolson Scheme**  
Ravindara Borana, Bhavan's R.A. College of Science, India
- 09:40 – 10:05 **Evaporation from a capillary tube: Experiment and modelization**  
Emmanuel Keita, Université Paris-Est,Laboratoire Navier, China
- Coffee Break
- 10:35 – 11:00 **Steady MHD flow of a Sisko fluid past a porous plate**  
Shirley Abelman, University of the Witwatersrand, Johannesburg. South Africa
- 11:00 – 11:25 **Experimental study for air cooling using membrane covered tray**  
Mohamed Ali, King Saud University, Saudi Arabia
- 11:25 – 12:00 Closing Remarks
- 12:00 – 13:30 Lunch
- 13:30 Departures