

Final Program

Nanofluids: Fundamentals and Applications

September 16-20, 2007

Copper Mountain, Colorado

Co-Chairs

Pawel Koblinski

Rensselaer Polytechnic Institute, USA

Yulong Ding

University of Leeds, UK

Sarit Kumar Das

Indian Institute of Technology, India

ECI

Engineering Conferences International

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SUNDAY, Sept 16

- 16:00 – 18:00 Registration
- 18:00 – 19:00 Reception
- 19:00 – 20:30 Dinner

MONDAY, Sept 17, 2007

- 07:00 – 08:15 Breakfast
- 08:15 – 08:30 Conference Welcome
Pawel Keblinski, RPI
Jules Routbort, ECI

Topic 1. Fundamentals of Colloids**Session 1**

Session Chair: Pawel Keblinski, RPI, USA

- 08:30 – 09:15 *Tutorial Lecture: Suspensions of interacting particles*
David Weitz, Harvard University, USA
- 09:15 – 09:45 *Invited lecture: Particle-particle and particle-surface interactions*
Simon Biggs, University of Leeds, UK
- 09:45 – 10:05 *Generation of Ag-Di water nanofluids using multipulse laser ablation in liquid approach*
Tran Phuoc, National Energy Technology Lab., USA
- 10:05 – 10:35 Coffee Break

Topic 2. Measurements of the thermal and flow behavior of nanofluids**Session 2: Focus on interfaces:**

Session Chair Simon Biggs, University of Leeds, UK

- 10:35 – 11:15 *Keynote lecture: Interfacial effects in heat transport*
David Cahill, UIUC, USA
- 11:15 – 11:45 *Invited Lecture: Statistical physics of heat and momentum transfer across interfaces*
J-L Barrat, University of Lyon, France
- 11:45 – 12:05 *Superspreading nanofluids and their ability to remove adhered micron sized particles from surfaces*
James Bowers, University of Leeds, UK
- 12:05 – 13:05 Lunch

13:05 – 16:00 Free time / *ad hoc* sessions

Session 3: Thermal Conductivity

Session Chair: Sarit Kumar Das, IIT Madras, India

16:00 – 16:30 *Invited lecture: Unprecedented thermal transport phenomena in nanofluids*

Stephen Choi, University of Illinois at Chicago, USA

16:30 – 17:00 *Invited lecture: Investigation of thermal transport in nanofluids using forced Rayleigh scattering*

David Venerus, Illinois Institute of Technology, USA

17:00 – 17:20 *Elaboration and thermal properties of nanofluids*

Cecile Reynaud, CEA, Cedex, France

17:20 – 17:40 *Enhanced Thermal Conductivity By The Magnetic Field In Heat Transfer Nanofluids Containing Carbon Nanotube*

Haiping Hong, South Dakota School of Mines and Technology, USA

19:00 – 20:30 Dinner

20:30 – 22:00 Poster session with Social Hour

TUESDAY, Sept 18, 2007

07:00 – 08:15 Breakfast

Session 4: Convection, flow and other dynamical phenomena

Session Chair: Yulong Ding, University of Leeds, UK

08:15 – 09:00 *Tutorial lecture: Convective heat transfer of nanofluids: Theory, experiment and interpretation*

Dongsheng Wen, Queen Mary University of London, UK

09:00 – 09:30 *Invited lecture: Rheological properties of nanofluids and their implications to heat transfer characteristics*

Chongyup Kim, Korea University, Korea

09:30 – 10:00 *Invited lecture: Thermal conductivity and particle agglomeration in nanofluids: Experiment and theory*

Jonathan Selinger, Kent State University, USA

10:00 – 10:40 Coffee Break

10:40 – 11:00 *Enhanced thermal conductivity in nanofluids under the action of oscillating force fields*

Clément le Goff, CNRS, Nantes, France

11:00 – 11:20 *Flow loop experiments using nanofluid coolants*

David Huitink, Texas A&M, USA

11:20 – 11:40 *The stability mechanism study of nanofluids*

Calvin Hong Li, RPI, USA

- 11:40 – 12:00 *Heat conduction and thermal diffusion in stationary nanofluids*
Patricia Gharagozloo, Stanford University, USA
- 12:00 – 13:00 Lunch
- 13:30 – 16:00 Free time / *ad hoc* sessions
- Session 5: Phase change**
Session Chair: Ravi Prasher, Intel, USA
- 16:00 – 16:30 *Invited lecture: Boiling heat transfer of Nanofluids*
S.K. Das, IIT Madras, India
- 16:30 – 17:00 *Invited lecture: The mechanism of pool boiling critical heat flux enhancement nanofluids*
Jacopo Buongiorno, MIT, USA
- 17:00 – 17:20 *Colloidal stability, dispersion characteristic, and ionic concentrations of nanofluids in pool boiling*
Ranganathan Kumar, University of Central Florida, USA
- 17:20 – 17:40 *Influence of surface contact angle on nanofluid boiling heat transfer*
Jungho Kim, University of Maryland, USA
- 19:00 – 20:30 Dinner
- 20:30 – 22:00 Poster session with Social Hour

WEDNESDAY, Sept 19, 2007

- 07:00 – 08:15 Breakfast
- Topic 3. Modeling of nanofluids**
- Session 6**
Session Chair: David Cahill, UIUC, USA
- 08:15 – 09:00 *Keynote Lecture: Understanding nanofluids thermal conduction: Old and new mechanisms*
Ravi Prasher, Intel Corporation, USA
- 09:00 – 09:30 *Invited Lecture: Atomic scale modeling of thermal transport: Applications to nanofluids*
Pawel Keblinski, RPI, USA
- 09:30 – 10:00 *Invited Lecture: Prediction of thermal conductivity and mass diffusivity of nanofluids*
Yimin Xuan, Nanjing University, China
- 10:00 – 10:30 Coffee Break

- 10:30 – 10:50 *Simulation of heat conduction in nanofluids using the energy conserving dissipative particle dynamics method*
Rui Qiao, Clemson University, USA
- 10:50 – 11:10 *Thermal Transport enhancement in nanofluids: The role of particle self-diffusion*
Michel Louge, Cornell University, USA
- 11:10 – 11:30 *Beyond Maxwell Limit: Thermal conduction in nanofluids with percolating fluid structures*
Jacop Eapen, Los Alamos National Laboratory, USA
- 11:30 – 11:50 *A combined static and dynamic mechanism-based model for the effective thermal conductivity of nanofluids*
Kai Choong Leong, Nanyang Technological University, Singapore
- 11:50 – 12:10 *Thermal transport in Carbon Nanotubes-based nanofluids – a synthesis of percolation scaling, multiply connected network and Onsager's virials perspectives*
Shiu-Wing Tam, Argonne National Laboratory, USA
- 12:10 – 13:30 Lunch
Free Afternoon
- 19:00 – 20:00 Social Hour
- 20:00 Conference Banquet

THURSDAY, Sept 20, 2007

- 07:00 – 08:15 Breakfast

Topic 4: Applications and other phenomena

Session 7

Session Chair: Jacopo Buongiorno, MIT, USA

- 08:15 – 08:45 *Invited lecture: Engineered nanofluids for industrial process intensification*
Yulong Ding, University of Leeds, UK
- 08:45 – 09:15 *Invited talk: Heat transfer nanofluids in compact and microreactors*
Alexei Lapkin, University of Bath, UK
- 09:15 – 09:45 *Invited talk: Generating heat with nanoparticles*
Hugh Richardson, Ohio University, USA
- 09:45 – 10:15 Coffee Break
- 09:15 – 10:45 *Invited talk: Control of biological function via interactions with nanoparticles*
Kimberly Hamad-Schifferly, MIT, USA

- 10:45 – 11:05 *Antibacterial behavior of dilute suspensions of metal oxides (metal oxides nanofluids)*
Linling Zhang, University of Leeds, UK
- 11:05 – 11:25 *Thermophysical properties of water-in-FC72 nanoemulsion fluids*
Bao Yang, University of Maryland, USA
- 11:25 – 11:50 Closing remarks
- 12:00 – 13:00 Lunch
- 13:00 Adjournment