General Announcement/
Call for Abstracts

Third International Conference on Porous Media and its Applications in Science, Engineering and Industry
Sponsored by Engineering Conferences International &
U.S. National Science Foundation

June 20-25, 2010
Montecatini, Italy

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Synopsis
We had organized and held two highly successful conferences on Porous Media and its Applications in Science, Engineering and Industry in 1996 in Kona, Hawaii, and in 2007 in Kauai, Hawaii, which were attended by various researchers in porous media worldwide. This conference will build on the last two conferences so that it reflects the research done internationally in the currently active areas of the topic. The presence of the highly successful Journal of Porous Media and both editions of the very well received Handbook of Porous Media will act as an additional impetus to further galvanize this conference. Papers of high quality will be considered for submission to the Journal of Porous Media.

The pioneering works in the area of fluid transport as well as some aspects of heat transport in porous media go back to the beginning of this century. Convective heat transfer in fluid-saturated porous media has gained considerable
attention in recent decades due to its relevance in a wide range of applications such as thermal insulation engineering, water movements in geothermal reservoirs, heat pipes, underground spreading of chemical waste, nuclear waste repository, geothermal engineering, grain storage and enhanced recovery of petroleum reservoirs. Radiative heat transfer and multiphase transport processes in porous media, both with and without phase change, have gained extensive attention in recent years. This is due to the wide range of applicability of these research areas in contemporary technology. These applications include, but are not restricted to, areas such as geothermal engineering, building thermal insulation, chemical catalytic reactors, packed cryogenic microsphere insulation, petroleum reservoirs, direct contact heat exchangers, coal combustors, nuclear waste repositories, and heat pipe technology.

Several applications related to porous media require a detailed analysis of convective heat transfer in different geometrical shapes, orientations and configurations. Based on the specific applications, the flow in the porous medium may be internal or external. Most of the studies in porous media carried out until the past two decades are based on the Darcy flow model, which in turn is based on the assumption of creeping flow through an infinitely extended uniform medium. However, it is now generally recognized that non-Darcian effects are quite important for certain applications. Different models have been introduced for studying and accounting for such non-Darcian effects as the inertial, boundary, and variable porosity effects. The ultimate goal of studies in convective heat transfer in porous media is to determine the dimensionless heat transfer coefficient, the Nusselt number. A considerable amount of research has been carried out to accomplish this, and empirical correlations for the Nusselt number for a variety of configurations and boundary conditions have been established, with certain limitation, of a wide variety of current technological applications. Many industrial operations in the areas of chemical and metallurgical engineering involve the passage of a fluid stream through a packed bed of particulate solids to obtain extended solid fluid interfacial areas or good fluid mixing. Typical examples of applications involving such systems include catalytic and chromatographic reactions, packed absorption and distillation towers, ion exchange columns, packed filters, pebble-type heat exchanger, petroleum reservoirs, geothermal operations and many others. The design of these systems is decided by mechanisms of pressure drop, fluid flow and heat and mass transfer governing the process in the packed bed arrangement. Considerable attention has been paid to the aforementioned aspects because of their direct influence on the optimization and stability of the design of these systems.

Developments in modeling transport phenomena in porous media have advanced several pertinent areas, such as biology. As such the conference will also entertain papers related to bio transport in porous media as well as research related to turbulent modeling in porous media.

Preliminary Conference Outline

1. Natural And Forced Convection In Porous Media
2. Evaporation, Condensation, Capillary Effects And Reactive Flow In Porous Media
3. Radiation Heat Transfer In Porous Media
4. Conduction in Porous Media
5. Combined Heat and Mass Transfer in Porous Media
6. Particle Transport and Deformable Porous Bodies
7. Advanced Mathematical Approaches to the Modeling of Porous Media
8. Industrial and Environmental Heat Transfer and Flow in Porous Media
10. Advances in Numerical Techniques
11. Experimental and Measuring Techniques
12. Turbulence in Porous Media
13. Particle Migration and Deposition in Porous Media
15. Material Processing Applications

International Organizing Committee

Prof. Antonio Barletta (Università di Bologna, Italy)
Prof. Ping Cheng (Shanghai Jiaotong University, China)
Prof. F. Civan (University of Oklahoma, USA)
Porf. Abbas Firoozabadi (Yale University, USA)
Dr. Fabien Frizon (CEA Marcoule, France)
Dr. Robin Gerlach (Montana State University, USA)
Prof. S. Majid Hassanizadeh (Utrecht University, Netherlands)
Prof. Ji-Huan He (Institute of Physics of Fibrous Soft Matter, China)
Dr. Jean Francois Hetu (National Research Council, Industrial Materials Institute, Canada)
Confirmed Speakers

- Prof. A. Bejan (Duke University, USA)
- Prof. Ping Cheng (Shanghai Jiaotong University, China)
- Prof. F. Civan (University of Oklahoma, USA)
- Prof. Abbas Firoozabadi (Yale University, USA)
- Dr. Robin Gerlach (Montana State University, USA)
- Prof. S. Majid Hassanizadeh (Utrecht University, Netherlands)
- Dr. Jean Francois Hetu (National Research Council Canada, Industrial Materials Institute, Boucherville, Quebec, Canada)
- Prof. Rudolf Hilfer (Universität Stuttgart, Germany)
- Prof. Arzhang Khalili (Max Planck Institute for Marine Microbiology, Germany)
- Prof. A. Kuznetsov (North Carolina State University, USA)
- Prof. J. H. Masliyah (University of Alberta, Canada)
- Prof. Robert McKibbin (Massey University at Albany, New Zealand)
- Dr. Marc Prat (Institut de Mécanique des Fluides de Toulouse, France)
- Prof. Michel Quintard (Institut de Mécanique des Fluides de Toulouse, France)
- Dr. D.A.S. Rees (University of Bath, England)
- Prof. A. Heitor Reis (University of Évora, Portugal)
- Prof. N. Rudraiah (Bangalore University, India)
- Prof. Manolis Tomadakis (Florida Institute of Technology, USA)
- Prof. Peter Vadasz (Northern Arizona University, USA)
- Prof. Yiannis Ventikos (University of Oxford, UK)
- Prof. Shapour Vossoughi (University of Kansas, USA)
- Dr. Graham Weir (Industrial Research Ltd, New Zealand)
- Prof. Andrew W. Woods (University of Cambridge, UK)

Call for Abstracts
Abstracts (maximum one page) are solicited from participants to allow better placement in the discussion sessions. Poster presentations are welcome. Oral presentations are limited to plenary lectures only. The deadline for submission of abstracts is as follows:

<table>
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<tr>
<th>Abstracts for Oral Presentations</th>
<th>December 1, 2009</th>
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<tr>
<td>Abstracts for Poster Presentations</td>
<td>March 1, 2010</td>
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Participants are expected to follow directions on the ECI website (www.engconfintl.org/10ap.html) and submit their abstracts electronically. If any problems with electronic submission arise, please contact ECI (info@engconfintl.org).

**Conference Publication**

A program book including abstracts of all presentations will be distributed to attendees at the conference. In addition, a proceedings of accepted papers will be distributed on site to all attendees. The proceedings will be published by the American Institute of Physics.

The deadline for manuscript submission is **April 24, 2010**. Details on format, page limits, etc. will be posted here after abstract acceptance notifications are sent out. Acceptance notices will be sent to authors in mid-December.

Note that at least one author must be registered for the conference by April 15 for a paper to be included in the proceedings.

**Engineering Conferences International**

Engineering Conferences International (ECI) is a not-for-profit global engineering conferences program, originally established in 1962, that provides opportunities for the exploration of problems and issues of concern to engineers and scientists from many disciplines.

The format of the conference provides morning and late afternoon or evening sessions in which major presentations are made. Poster sessions will be scheduled for discussion as well. Available time is included during the afternoons for ad hoc meetings, informal discussions, and/or recreation. This format is designed to enhance rapport among participants and promote dialogue on the development of the meeting. We believe the conferences have been instrumental in generating ideas and disseminating information to a greater extent than is possible through more conventional forums.

All participants are expected both to attend the entire conference and to contribute actively to the discussions. The recording of lectures and presentations is forbidden. As ECI conferences take place in an informal atmosphere, casual clothing is the usual attire.

**Hotel and Travel Information**

The Il Ciocco Hotel and Conference Center is located on 2,000 acres of natural park in Castelvecchio Pascoli (near Barga), the heart of Garfagnana, one of Tuscany’s most enchanted valleys. It is 40 km (26 miles) from Lucca, 60 km (39 miles) from Pisa, and 110 km (74 miles) from Florence. Located about 500 meters above sea level, the hotel overlooks Serchio Valley and the Apuane Mountains. The hotel is located on a mountain, approximately 2 km from the main road. The conference facilities are excellent and the four-star hotel has 216 rooms, all air-conditioned, with bathroom and mini-bar. The hotel offers laundry service and has an ATM. One would need a car or taxi to go to Barga or Callicano for shopping as there are no shopping facilities for toiletries on site. You should plan to bring your own electrical adapters if your computer is not using a Europlug. The hotel also offers an outdoor swimming pool (seasonal – usually opens in May; note that swimming caps are mandatory in Italy and can be purchased at the pool), fitness club, 8 tennis courts (1.5 km uphill from the hotel; there are some rackets and balls for loan), soccer/football, horse riding, ping pong, billiards, basketball, volleyball, bocce, mountain bike trails, piano bar/disco and games room. See www.ciocco.it

On Sunday, 20 June, a bus will pick up conference participants from the Pisa Airport. There are daily direct flights to Pisa from London, Paris and Frankfurt. The railway station at Pisa is equally accessible as it is on the Tirrenia line where almost hourly Inter-City trains, among others, arrive from the South (Naples and Rome) and from northern Europe via Turin and Milan. Please plan your arrival in Pisa to give you no less than an hour before the bus departs for Il Ciocco. This will allow you ample time to clear customs and retrieve your luggage. If you arrive on Saturday so that you can sightsee in Pisa before going to Il Ciocco on Sunday, we recommend that you select a hotel near the train station so that you can be picked up at the train station rather than returning to the airport with your luggage in tow.
The conference bus will return to the Pisa airport/train station after the conference adjournment/lunch on Thursday afternoon. Trains can conveniently transport you to Milan, Florence or Rome.

As the conference nears, the final details for bus transportation will be posted at: www.engconfintl.org/10ap.html.

If you plan to come by auto, a map is available on the Il Ciocco web site (www.ciocco.it).

Garfagnana
The area surrounding Il Ciocco is known as Garfagnana. This mountainous region was once notorious for witches and its landmark is a medieval 93 meter-long parabolic stone arch supposedly built by the devil (“Devil’s Bridge – which you will see as you come from Pisa or Lucca to Il Ciocco). The Serchio River has cut a dramatic course between the heavily forested Apennines on the east and the geologically older Apuan Alps to the west. The Alpi Apuane stand out as one of the most original landscapes in Italy as its peaks appear snowy because of the gleaming white fissures left by quarrying marble. Nearby is the Grotta del Vento, one of the largest stalactite caves in Europe. The chief staple of the district until recently was flour made from chestnuts, and chestnut groves still cover much of the region.

Barga
Nearby is Barga, a town with ancient origins that was quite important in the Middle Ages because of the manufacture of silk threads. It evolved from a Roman fort to a Lombard castle-town to Lucchese bishopric. It is known for its historic monuments and artistic richness. The old city preserves its medieval layout but has numerous Renaissance buildings. In the old town along the cobbled streets are antique and handicraft workshops that continue the traditional wood, ceramic and iron working. The alleys cut with steps are called ‘carraie’. Its Romanesque cathedral (9th century with construction finishing in the 15th century), Duomo San Cristofano, dominates the skyline as it is located on the crown of the hill around which the entire town clusters. Inside is a beautiful altarpiece with the 13th century Madonna del Molino, some Della Robbia terracottas and a marble pulpit (attributed to Guido Bigarelli) that is one of the most important medieval works of art in Tuscany. One can get lovely views of the surrounding country from the garden adjacent to the cathedral. These views include the valley of the river Serchio, the Apuan Alps that are renowned for their marble quarries, and the green Apennines. Looking closely at the Apuan Alps, one can see a natural stone arch at Monte Forato that spans 30 meters. A good view of the arch can also be found from the veranda at Il Ciocco.

The Italian poet Giovanni Pascoli wrote poems about Barga. His home and burial place are at the bottom of the hill leading to Il Ciocco.

Conference Excursion - Lucca
An optional excursion to the historic walled city of Lucca is tentatively planned. Lucca rivals any city in Italy for fascination and beauty. One century flows into the next as you stroll along its streets. There will be a sign-up sheet at the Il Ciocco registration desk for those who are interested in participating. Any museum entrance fees must be paid for individually.

Conference Fees
The conference fees are all-inclusive. They include registration, accommodations, meals, taxes and gratuities from the night of Sunday June 20 to the lunch of Thursday, June 24. Incidental fees (telephone calls, faxes, equipment rentals, bar, etc.) are billed to your personal account by the hotel.

The following are the CURRENT ESTIMATES of the conference fees in Euro.

- Participant (single occupancy or sharing room with a guest; guest fee additional) TBA Euro
- Participant (sharing a room with another participant) TBA Euro
- Bona fide Graduate Student (sharing a room with another student) TBA Euro

Final fees will be in US dollars based on the latest exchange rate. We expect to post the final fees in January 2010 when the preliminary program is completed.