



INTERPORE NEWS

Issue 8, August 2011

Short Course & Workshop “Image Analysis for Porous Media” a great success

Imaging porous materials and their changes due to various processes such as pore flow or exposure to external stress is becoming a ubiquitous method of material characterization and simulation validation. Drs. Maša Prodanović (University of Texas at Austin), Adrian Sheppard (Australian National University) and Dorte Wildenschild (Oregon State University), facilitators of the InterPore Focus Group on Pore Scale Modelling and Visualization, gave a short course and workshop on this topic July 12th-15th, 2011 in Austin, TX, USA. Events were cosponsored by the Center for Petroleum and Geosystems Engineering (UT Austin), the Exxon Mobil Upstream Research Company and InterPore. 43 students and researchers, some from as far as Austria, Belgium and the Czech Republic attended the 2.5-day short course.

The short course introduced imaging and image analysis from practitioners' perspective by combining lectures with hands-on exercises using the freely available image processing and analysis tool ImageJ. Course



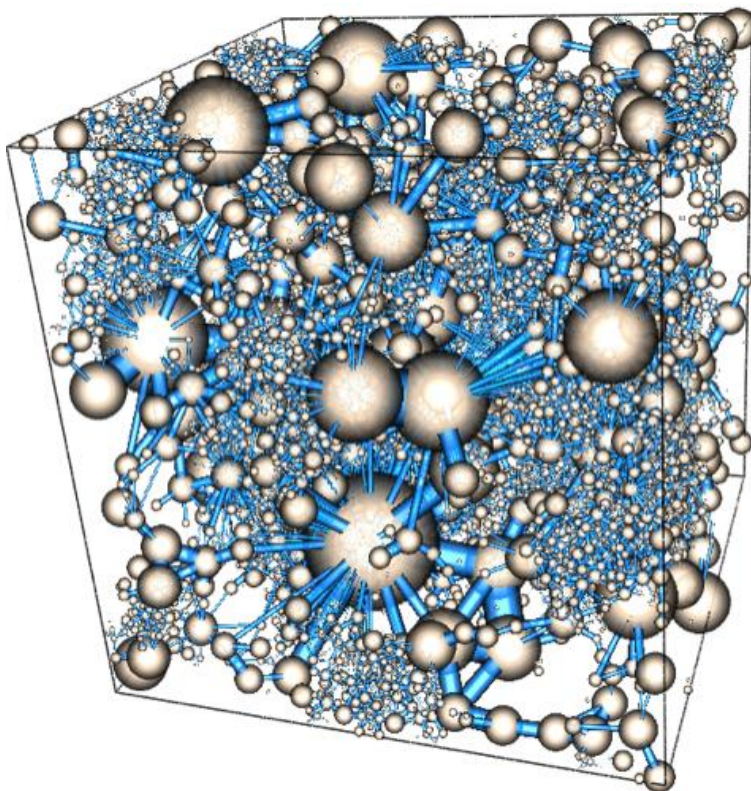
feedback was uniformly positive with instructors each providing a unique technical expertise and teaching style. Their active and upbeat personalities certainly didn't hurt! The course started by introducing images/data types, providing an overview of experimental methods, grayscale image manipulation and segmentation/surface extraction, and continued with advanced topics such as skeletonisation, pore-throat networks, grain separation, watershed methods, and so forth.

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COMMUNITY NEWS



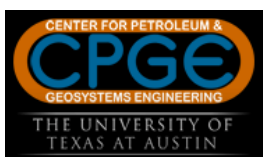
The workshop that followed was attended by about 54 researchers presenting on a wide variety of topics related to the latest and greatest on image analysis for porous materials and related modelling. There were 13 invited talks (abstracts and titles available on the InterPore website) and a poster session. The format allowed for a refreshing mix of young and experienced researchers in the field, and plenty of discussion.

After the workshop, attendees relaxed on a Central Texas Tour that took them to Natural Bridge Caverns (a large karst cave system an hour from Austin), local food specialties at Cooper's BBQ in New Braunfels and finally swimming at the Blue Hole (spring-fed natural swimming pool and park) in Wimberley. The latter was a well-kept secret, even for those who have visited Austin or Central Texas before.

There are plans to give the short course again in future: watch for updates on the InterPore website.

More information: www.cpge.utexas.edu/irc/iapm2011/

ExxonMobil
Upstream Research

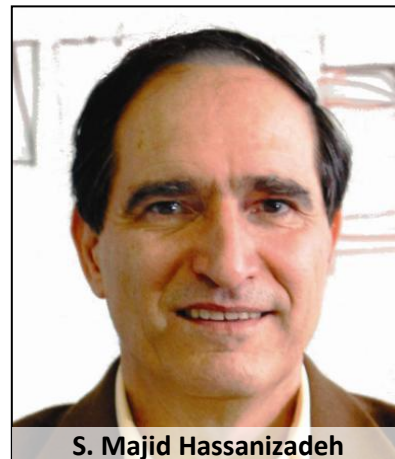




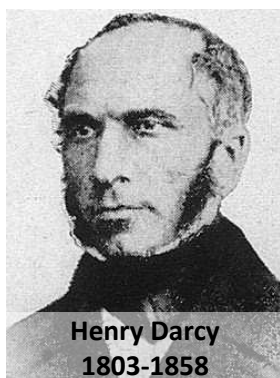
COMMUNITY NEWS

InterPore Member to become Darcy Distinguished Lecturer 2012 and wins the Don and Betty Kirkham Soil Physics Award

The Board of Directors of the U.S. **National Groundwater Association**, at the recommendation of the Darcy Lecture Series Search Committee, has selected **S. Majid Hassanizadeh** as the Darcy Lecturer for 2012. Majid is a founding member and the Managing Director of InterPore.



S. Majid Hassanizadeh



Henry Darcy
1803-1858

The news was announced in the Association's online newsletter, The Pump. The Henry Darcy Distinguished Lecture Series in Ground Water Science was established in 1986 by the U.S. National Groundwater Association to foster interest and excellence in groundwater science and technology. The series has reached more than 70,000 groundwater students, faculty members, and professionals worldwide. Becoming a Darcy Lecturer is one of the highest honours in the groundwater industry

Annually, a panel of scientists and engineers invites an outstanding groundwater professional to share his or her work with their peers and students. The Darcy Lecturer typically gives more than 50 invited lectures across five continents. Requests for a visit by the Darcy Lecturer must be submitted online on the website of the NGWA before the deadline of October 31st, 2011. Subjects of lectures to be given by Majid Hassanizadeh can be found at:



<http://www.ngwa.org/Foundation/darcy/Pages/Future-Darcy-Lecturer.aspx>.

Majid Hassanizadeh has also been selected by the **Soil Science Society of America** to receive the **Don and Betty Kirkham Soil Physics Award** (click [here](#) for more info on the award) in recognition of his fundamental contributions to the physics of fluid flow through soils. The first recipient of this award was Rien van Genuchten in 1998 (also an InterPore member). The award will be conferred on the 18th of October, 2011, during the Soil Science Society of America plenary meeting in San Antonio, Texas.



In an exclusive interview with Majid, he took great pains to acknowledge the significant contributions of his many collaborators and in particular his PhD students. "This award is a tribute to the outcome of those collaborations and is proudly shared with my students and colleagues." For more information about Majid's very distinguished career visit: www.geo.uu.nl/hydrogeology/majid.html.



COMMUNITY NEWS

New InterPore Student Chapter in the Netherlands

Recently, the InterPore Student Chapter of the Netherlands was founded by **Nikos Karadimitriou** and **Dr. Vahid Joekar-Niasar**, a PhD student and a post-doc researcher respectively, of Environmental Hydrogeology, Utrecht University. The main objective of the NL-InterPore Student Chapter is to promote InterPore goals and ideals.

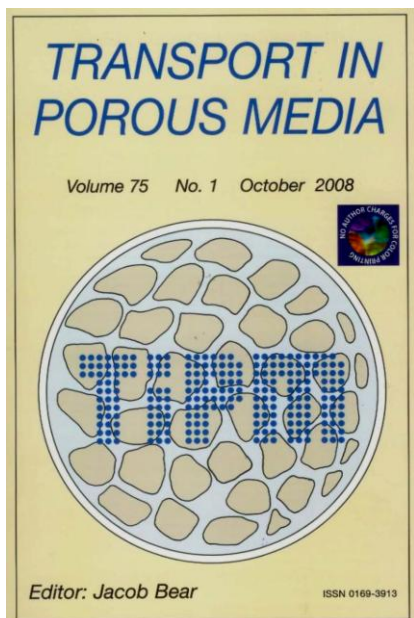
Their first activity was to organize a mini-symposium (see page 14 of this issue) and bring together porous media researchers from diverse subject areas working with porous media. Many of these researchers have not met before, although they work on similar processes and use similar modelling or experimental techniques. In addition to Dutch researchers, three invited researchers from outside the Netherlands will attend the mini-symposium.

For more information, registration and the scientific program, please visit the following links:

www.geo.uu.nl/hydrogeology/Symposium2011/Publication8.htm

www.geo.uu.nl/hydrogeology/Symposium2011/Publication8_files/Page298.htm

Impact factor of “Transport in Porous Media” increasing



Since 2008 we have had a strategic alliance with TiPM, and our partner is on the rise... So, members, please consider publishing in TiPM:

The Journal Citation Reports 2010 have just been released by Thomson Reuters. The 2010 Impact Factor for “Transport in Porous Media” is **1.168**. Over the last three years, “Transport in Porous Media” numbers have been on the rise:

Year	Impact factor	Citations
2010	1.168	1933
2009	0.966	1839
2008	0.722	1306





PUBLICITY COMMITTEE

New InterPore Publicity Committee Members:

What will the Committee do for you? What you can do for the Committee?

The new members of the InterPore Publicity Committee would like to introduce themselves. The committee work kicked off with a first and productive telephone conference in July 2011. Our members are:

- 🌐 Rodrigo Rosati (Procter&Gamble): Chair
- 🌐 Wolfgang Nowak (University of Stuttgart): Newsletter editor
- 🌐 Vahid Joeekar-Niasar (Utrecht University)
- 🌐 Andrea Peri (Procter&Gamble)



Currently, we are looking for a 5th North America based member, to better reflect the international character of the society.

The former chair of the Committee, Margot Gerritsen (Stanford University), handed over the reins to Dr. Rosati after serving as Chair of the committee for two years. She will continue to contribute to the publicity committee by sharing her past experience. At this point, we would like to thank her in the name of the entire InterPore society for her valuable efforts.

The goals of the committee are:

- 🌐 To recruit new members for InterPore, ideally from 281 (current) to 500 by the end of 2013,
- 🌐 To increase the visibility of InterPore, and
- 🌐 To increase the number of active members from currently approx. 35 to 70 by the end of 2013.



PUBLICITY COMMITTEE

Basic tools and the new InterPore Flier

The basic tools already in place are:

- ✿ this newsletter: issued once per quarter, with all issues available on www.interpore.org/news/
- ✿ the new InterPore NewsFlash: issued weekly for quick updates within the InterPore community
- ✿ our website at www.interpore.org
- ✿ a new Facebook Group set up by Michelle Hartnick available at <http://tinyurl.com/3fe9lrc>
- ✿ the new InterPore Flier that was published this year:



INTERPORE
International Society
for
Porous Media
"Similar solutions for diverse applications"

INTERPORE COUNCIL

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Fraunhofer Institute ITWM, Kaiserslautern, Germany

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Masoud Kaviany (University of Michigan, USA)
Rodrigo Rosal (Procter & Gamble, Frankfurt, Germany)
Mary F. Wheeler (University of Texas at Austin, USA)

HOW TO CONTACT US

INTERPORE SECRETARY
secretary@interpore.org

E-MAIL
info@interpore.org

WWW.INTERPORE.ORG

ACTIVITIES

- ✿ Annual Meetings and International Conferences on Porous Media
- ✿ Workshops on current research questions
- ✿ Critical evaluations and recommendations for modelling practices of complex porous media
- ✿ Preparing short scientific documents on major challenges in porous media research, disseminating these to research centres and funding agencies
- ✿ Coordinating major experimental methods for characterizing porous media material properties
- ✿ Facilitating contacts among scientists from industry and universities
- ✿ Maintaining a list of MSc- and PhD-level research subjects; initiating contact between industry and universities to host MSc- and PhD students
- ✿ Short-term exchange programmes for staff members
- ✿ Member's forum for exchange of news and ideas on our website at <http://www.interpore.org>
- ✿ InterPore Newsletter with four issues per year

AWARDS

- ✿ InterPore Honorary Member Award
- ✿ InterPore-Fraunhofer Award for Young Researchers
- ✿ InterPore-Procter & Gamble Award
- ✿ InterPore-Procter & Gamble Student Award

WHY YOU SHOULD JOIN

- ✿ A platform that connects experts and diverse research fields. We exchange interesting know-how between academia and industry. This enables faster and unexpected results in quicker learning and acceleration.
- ✿ A registration fee for conferences sponsored by InterPore is waived at specialised workshops, etc.
- ✿ The journal "Transport in Porous Media" (published by Springer), giving considerable annual subscription for the journal books from Springer.
- ✿ Access to course materials on the website, which will be updated from time to time.
- ✿ The possibility of posing technical questions to members through an ASK ME facility, addressed to InterPore members.
- ✿ Recognition of top scientists and students
- ✿ Establishing "focus groups" working on major porous media research topics
- ✿ Quarterly newsletters, keeping you updated about new developments, meetings, short courses, job opportunities, etc.

BECOME A MEMBER - REGISTER ONLINE OR SIMPLY CONTACT US

There is a clear need to develop theories, models and measurement techniques that apply specifically to complex porous media and that are transferable between different applications.

researchers from different branches are often unaware of each other's activities. This is why we establish and intensify exchange and synergies in porous media science.

To identify sources of funding for collaborative research among partners and to facilitate the establishment of collaborative research projects

To facilitate training and education

The flier is available at www.interpore.org/useruploads/files/interpore_flyer_highres.pdf. It may be used by all members on various occasions to attract new members or simply to inform potential new members about the mission and benefits of InterPore.

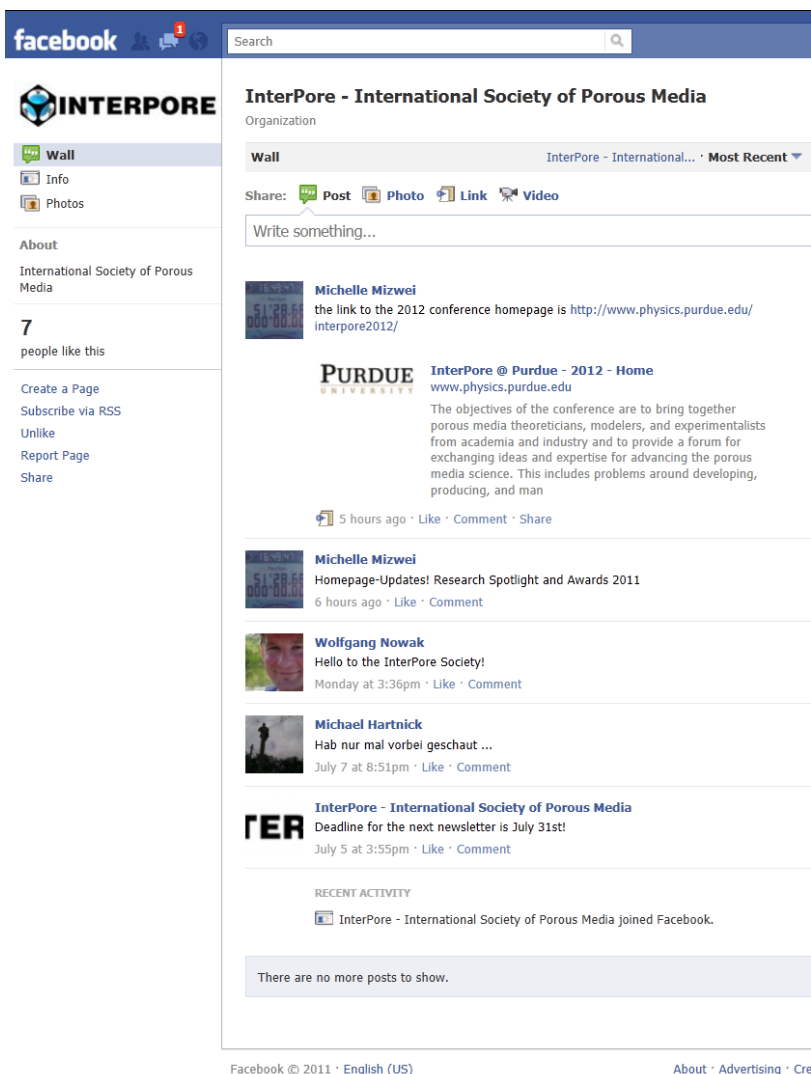
PUBLICITY COMMITTEE

New InterPore facebook group

The new facebook group “InterPore” can be found by simply logging into Facebook, and then searching for “InterPore”. Alternatively, use the tinyurl link that Michelle has set up:

<http://tinyurl.com/3fe9lrc>

Our facebook group will serve members as a quick communication platform. The InterPore Executive Teams will post homepage updates and deadlines there. If you subscribe to the group or become a friend of it, and have your Facebook communication settings accordingly, you will receive these short news items directly in your email account, text message on your phone, or however you prefer to use Facebook. We hope that the community also helps to fill it with information and keep it lively!!!



The screenshot shows the Facebook page for the InterPore organization. The page header includes the Facebook logo and a search bar. The main content area displays the organization's name, "InterPore - International Society of Porous Media", and a wall with several posts. The first post is from Michelle Mizwei, sharing a link to the 2012 conference homepage. The second post is from Wolfgang Nowak, welcoming members to the society. The third post is from Michael Hartnick, mentioning a deadline for the next newsletter. The page also features a "RECENT ACTIVITY" section showing that the organization joined Facebook. The footer of the page includes copyright information for Facebook © 2011 and language settings for English (US).



RESEARCH SPOTLIGHT

Pore Scale Modelling:

Carefully calibrated 3D microstructures for sandstone from 128 x 128 x 128 to 32768 x 32768 x 32768 voxels and resolutions covering three decades from 117 μm down to 458 nm

By Rudolf Hilfer and Thomas Zauner

Institute for Computational Physics, University of Stuttgart

Digital three-dimensional images of unprecedented size and accuracy have been created and placed in the scientific public domain. They will soon be available to the scientific community from the InterPore website.

A carefully calibrated centimetre scale porous microstructure (1.5cm side length) has been discretized at nine different resolutions from sub-millimetre to submicron scales covering nearly three decades in resolution. The fully three-dimensional microstructures may be used for analysis, numerical computations, tests of algorithms or methods, calibrations, or as a starting point to generate other microstructures. The data are available under a Creative Commons License (CC BY-NC-SA 3.0) (Attribution-NonCommercial-ShareAlike).

The objective was to provide to the scientific public a suite of fully three-dimensional digital images with a realistic strongly correlated microstructure typical for sandstone. A cubic sample of 1.5 cm side length (laboratory scale) has been imaged. Three-dimensional (3d) images resolved at 117.18 μm , 58.59 μm , 29.3 μm , 14.65 μm , 7.3244 μm , 3.662 μm , 1.831 μm , 0.9155 μm , and 0.4576 μm have been generated.

Experimental X-ray or synchrotron micro-tomographic (μCT) images of size, resolution or data quality comparable to our images are, to the best of our knowledge, not available at present. Experimental μCT images of similar size and quality are not expected to become available to the scientific community for years to come. Despite the progress in fully three-dimensional high resolution X-ray and synchrotron computer tomography of porous media in recent years, acquisition times for a 1024x1024x1024-sample of average quality at the ID19 beam-line of the European Synchrotron Radiation Facility are on the order of 30 minutes. Extrapolating to the number of 32768, such blocks would require roughly 16384 hours or 2 years of uninterrupted beam-time.

The continuum multi-scale modelling technology for carbonates developed in [2,3,4] was applied to Fontainebleau sandstone in [1]. A laboratory-sized cubic sample of side length 1.8cm was generated containing roughly 1.02 million polyhedral quartz grains. A visualization is seen in Fig.1. The grains have random polyhedral shapes; they are randomly oriented and have a prescribed overlap with each other (see [1] for more modelling details).



RESEARCH SPOTLIGHT

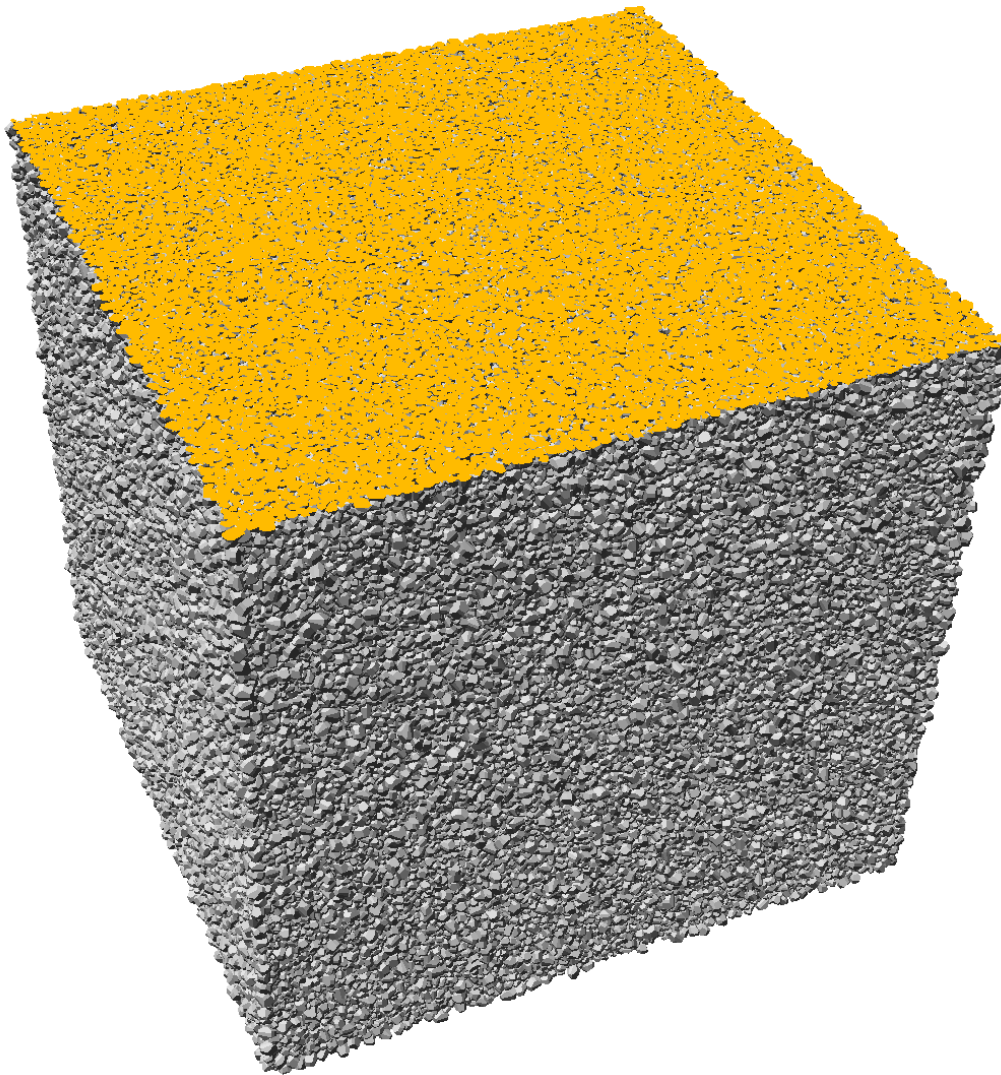


Figure 1: Three-dimensional rendering of the Fontainebleau sandstone continuum model [1]. The visualization contains over one million rendered quartz grains [7]. The image was created using the Quartz plugin for the interactive visualization software MegaMol.



RESEARCH SPOTLIGHT

A cubic subsample of 1.5 cm side length was cut from the original deposit to minimize boundary effects. This sample with 1.5cm side length has been used for the discretisations with multi-scale resolution provided on this website. The model was geometrically calibrated against a well-studied experimental microtomogram at 7.5 μ m resolution [5,6].

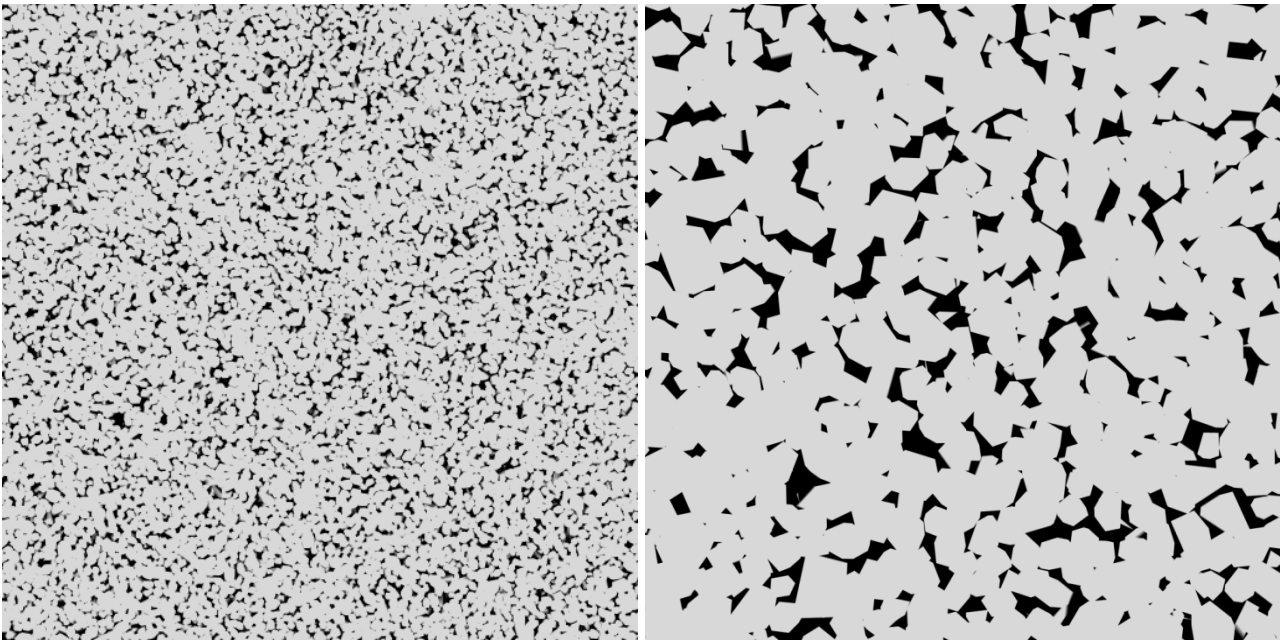


Figure 2: Two typical planar thin sections from the suite of synthetic micro-tomograms. The left 512x512 image shows the first plane of the full sample at 29 micrometre resolution. The side length is 1.5 cm. The right 1024x1024 image shows the upper left corner of the sample at 3.7 micrometre resolution. Its side length is 3.75 mm. Quartz grains are shown in grey, pore space is shown black.

The geometric calibration was based on matching porosity, specific surface, integrated mean curvature, Gaussian curvature, correlation function, local porosity distributions (with 240 μ m and 480 μ m measurement cell size), and local percolation probabilities at the same measurement cell sizes. Comparison of these quantities at resolution 7.5 μ m was carried out in [1].



RESEARCH SPOTLIGHT

This continuum model allows the generation of synthetic micro computed tomography (s- μ CT) data images at arbitrary resolution. The resulting 3D grayscale datasets, generated from discretisations at selected resolutions ranging from 458 nanometres to 117 micrometres, can be used for resolution-dependent high precision studies. Figure 2 illustrates the strongly correlated pore structure with two planar sections. Figure 2a shows the first layer of the sample at 29 micrometre resolution, while Figure 2b shows the upper left 1024x1024 section of the first layer of the sample with 3.7 micrometre resolution.

The entire data set will soon be available to the scientific community from the InterPore webpage.

References

- [1] F.D.E. Latief, B. Biswal, U. Fauzi, R. Hilfer, "Continuum reconstruction of the pore scale microstructure for Fontainebleau sandstone", *Physica A* 389, 1607-1618, (2010)
- [2] B. Biswal, P.E. Øren, R. Held, S. Bakke and R. Hilfer, "Stochastic Multiscale Model for Carbonate Rocks", *Phys.Rev.E*, 75,061303, (2007)
- [3] B. Biswal, P.E. Øren, R. Held, S. Bakke and R. Hilfer, "Modeling of Multiscale Porous Media", *Image Analysis and Stereology*, 28,23-34, (2009)
- [4] B. Biswal, R. Held, V. Khanna, J. Wang and R. Hilfer, "Towards precise prediction of transport properties from synthetic computer tomography of reconstructed porous media", *Physical Review E*, 80,041301, (2009)
- [5] B. Biswal, C. Manwart, R. Hilfer, S. Bakke and P.E. Øren "Quantitative Analysis of Experimental and Synthetic Microstructures for Sedimentary Rock", *Physica A*, 273,452, (1999)
- [6] R. Hilfer "Local Porosity Theory and Stochastic Reconstruction for Porous Media", in: *Lecture Notes in Physics*, vol. 554, 203, (2000)
- [7] S. Grottel, G. Reina, T. Zauner, R. Hilfer, T. Ertl, "Particle-based Rendering for Porous Media", *Proceedings of SIGRAD 2010: Content aggregation and visualization*, K. Jää-Aro and T. Larsson (eds.), Linköping Electronic Conference Proceedings, 52, 45, 2010



SHORT COURSES

Short Course: Upscaling techniques and homogenization

from 14th to 18th November 2011.

The course presents basic mathematical techniques for upscaling of models posed in complex domains, or involving highly oscillatory characteristics. Such problems appear as mathematical models for many real-world applications. Typical examples in this sense are the flow, diffusion, reaction and adsorption in porous media (e.g. in the sub-surface). The series of lectures provide appropriate techniques for a rational derivation of macro-scale models (effective coefficients and equations) starting from the micro scale level. A particular emphasis is on asymptotic and numerical homogenization. In the first instance, these techniques are applied to relevant mathematical models describing diffusion in layered and perforated media; diffusion, convection, reaction and adsorption in media with a complex microstructure; fluid flow through porous media (Darcy law). Next, more complex situations as encountered in micromechanics (elastic composite materials), concrete corrosion, or enhanced oil recovery will be considered. The lectures are given by Dr. Nicolas Neuß (Karlsruher Institut für Technologie), Dr.ir. Ron Peerlings, Dr. Adrian Muntean and Dr. Sorin Pop (Eindhoven University of Technology).

The course is addressed to PhD students and postdoctoral researchers working on fluid-mechanics, chemical and mechanical engineering as well as geo-sciences, informatics or mathematics. It requires the standard mathematical background (calculus, differential equations) as taught at undergraduate/MSc level.

Recommended reading: Homogenization and porous media (Chapters 1 and 6). Edited by Ulrich Hornung. Interdisciplinary Applied Mathematics, 6. Springer-Verlag, New York, 1997.

Practical issues: Detailed information on the course content and the exact schedule will be given later. Here you can find a tentative schedule.

The course conditions can be found on the dedicated JMBC page. To register, please visit the registration page. We strongly encourage the participants to bring their own (multi scale) problems to the attention of all participants. To this aim, poster sessions will be organized. These are open for all participants. The poster sessions are not only ideal ways to learn about the specific interest of the course attendees, but help the organizers to shape the last day of the course. This day is dedicated to selected applications, with the aim of addressing some of the particular questions coming from the participants. Therefore when registering we would like to ask you kindly to send you an email including the title and a short abstract of your poster, and some keywords. We are welcoming your suggestions concerning particular subjects. The participants are expected to make the necessary hotel arrangements individually.

We look forward to meet you in Eindhoven!

For further information and registration, please see www.win.tue.nl/~pop/JMBCCourse.html.

If you have any questions, please contact Sorin Pop (i.pop@TUE.nl).



MEETINGS & WORKSHOPS



INTERPORE



Universiteit Utrecht

Mini-symposium on:

Porous media research in the Netherlands; theory, experiments, models and applications.

The Netherlands Student Chapter of InterPore is organizing a mini-symposium on experimental, theoretical and computational aspects of porous media research, carried out in the Netherlands. For this purpose, scientists who work in the Netherlands in different fields of porous media research, come together to share their knowledge and expertise. In this mini-symposium, there will be presentations on medical, chemical, industrial, and technological applications of porous media.

Invited speakers

- Berg, S., Shell BV.
- Bradford, S. A., USDA
- Celia, M. A., Princeton University
- Huyghe, J. M. R. J., TU Eindhoven
- Kreutzer, M. T., TU Delft
- Lammertink, R. G. H., Twente University
- Lindquist, B. W., Stony Brook University
- Nicolaij, K., TU Eindhoven
- Rossen, W. R., TU Delft
- Van der Sman, R. G. M., Wageningen University
- Van der Zee, S., Wageningen University

Organizing Committee

- N. K. Karadimitriou nikos@geo.uu.nl
- V. Joekar-Niasar joekar@geo.uu.nl
- S. M. Hassanizadeh hassanizadeh@geo.uu.nl

Place

The mini-symposium will take place in Utrecht University, Earth Sciences building, Kleine Collegezaal.

Address

Budapestlaan 4,
3584 CD, Utrecht.

Date

6 September, 2011 at 09:15.

Registration

For registration, please send an email to an Organizing Committee member.



MEETINGS & WORKSHOPS

Joint AAPG/SPE/SEG Hedberg Research Conference
First Announcement and Call for Papers

Fundamental Controls on Flow in Carbonates

Dates and Location: July 8th – 13th 2012 Saint-Cyr Sur Mer, Provence, France,
with optional mid-meeting field trip

Conference Conveners

- Dr. Susan M. Agar (ExxonMobil Upstream Research Company)
- Prof. Sebastian Geiger (Heriot-Watt University)
- Dr. Juliette Lamarche (University of Provence, Marseilles)

Conference Goals

This conference aims to stimulate new ideas and joint industry-academic ventures that can accelerate research advances related to flow prediction and recovery in **carbonate** reservoirs. Such advances are likely to be among some of the most significant developments for the oil and gas industry in the next decade. We will pursue uplift for both industry and academic participants by increasing awareness of the needs and interests of each party and identifying potential to contribute to emerging concepts and novel technologies. In this way, the conference aims to generate new research opportunities, to identify paradigm shifts, and to raise awareness of the cross-disciplinary skill sets that are needed to solve problems related to flow prediction in carbonate reservoirs. Participants will combine forces to present an exciting vision to the global geoscience and engineering community of next generation research on the theme of "Fundamental Controls on Flow in Carbonates".

Key Components

- Novel techniques to stimulate innovation and cross-disciplinary, industry-academic dialogues
- Prioritization of key research questions and hypotheses related to improved hydrocarbon recovery in carbonate reservoirs
- Opportunities to define stretch research goals for academic-industry collaboration and strategies to realize the objectives
- Identification of the critical skills and collaborations to address short- and long-term challenges
- Identification of new research directions for career development

Background

Carbonate reservoirs contain approximately 50% of the world's hydrocarbon resources but are challenging to produce due, in part, to their lithologic and structural heterogeneity. A small increase (1-2%) in recovery from these reservoirs will make a substantial difference to global hydrocarbon production and could substantially extend the life of mature fields. Improvements in recovery require an in-depth understanding of flow behaviors and processes on various scales, significant advances in geologic and flow simulation methods and geophysical detection and monitoring capabilities. In recent years there have been several specialist conferences that have focused on gathering updates on related themes. This conference, however, focuses on the definition of innovative research directions, not only within the oil and gas industry but also between industry and academia.

Participants

The conference aims to gather experts from multiple disciplines. Likely participants will include academic and industry scientists with technical backgrounds in carbonate reservoir geoscience, flow modeling and reservoir engineering. New and different perspectives are sought from researchers in fields that are not traditionally linked to production from carbonate reservoirs. For this reason, the conveners also *strongly encourage* applications from researchers in related fields such as hydrogeology, visualization methods, numerical modeling as well as fundamental science. Industry experience is not required. Participants must be prepared to share original ideas and to collaborate in teams. The meeting will be limited to 90 participants.



MEETINGS & WORKSHOPS

Application – Completed Questionnaire Required:

Due to the limited space at this conference, participation is by invitation only. If you have not received an invitation but would like to be considered for participation, please request a questionnaire from **Debbi Boonstra**: debbi@aapg.org or hedberg.conference@pet.hw.ac.uk

Debbi Boonstra
AAPG Education Dept.
P.O. Box 979
Tulsa, OK 74101-0979
Phone:
Fax: (918) 560-2678
debbi@aapg.org

All applicants must complete and **return the questionnaire by June 15th 2011** in digital form to both email addresses (debbi@aapg.org and hedberg.conference@pet.hw.ac.uk) to be considered for an invitation. In the event that the conference is oversubscribed, selections will place a strong emphasis on the originality of technical contributions, demonstrated motivation to participate and willingness to engage and share ideas with others.

Successful applicants will receive an invitation before the **31st July 2011** to submit an abstract. Otherwise applicants will be notified of the option to remain on a waiting list and join the conference in the event that space becomes available.

Those who are invited to submit abstracts should indicate that the abstract is for the AAPG 2012 Fundamental Controls on Flow Conference. Include all co-authors' names (including contact information for the primary author). An abstract cover sheet is required for all submitted abstracts. Log on to <http://www.aapg.org/education/hedberg/index.cfm>, or contact Debbi at AAPG to obtain this form. Full instructions for abstract submission will be provided via invitations.

Deadline for submission of invited abstracts: February 1st 2012.

Final acceptance of abstracts will be confirmed by **March 15th 2012**.

Unless otherwise informed, you should assume that your abstract will be a poster presentation (see questionnaire).

Registration Fees: Registration fees will depend on sponsorship and will be announced two months prior to the conference. Registration will include half board for 5 nights, conference dinner, welcome reception and field trip. Reduced fees should be available for academic participants.

 **MEETINGS & WORKSHOPS**

XIX Conference on Computational Methods in Water Resources (CMWR2012)

The CMWR 2012 conference will be held from June 17-21, 2012 at the University of Illinois at Urbana-Champaign, Urbana, Illinois, USA. CMWR2012 continues the tradition of the previous 18 biennial conferences held in North America and Europe.

The conference will be a forum for the dissemination of the latest ideas in the development and application of advanced computational techniques to problems in water resources and related fields, including surface and subsurface hydrology, environmental hydrodynamics, ecohydrology, contaminant transport and remediation, carbon sequestration, and climate change. The continuing increase in raw computational power, software developments, availability of on-line hydrologic data, and recent advances in cyber-infrastructure make this a particularly exciting time for computational applications to water resources and geoscience challenges.

There is an impressive list of distinguished keynote speakers confirmed, and special sessions on cutting-edge themes are being developed. Please consult the conference web site for details: <http://cmwr2012.cee.illinois.edu/>.

Abstracts may be submitted to a general session or to a particular special session. Abstract submissions should be one page or less, and include title, author(s), author(s) affiliation, author(s) email, and abstract body. Abstracts will be reviewed with regard to scientific quality and suitability for the conference. Although full papers are not required, authors of accepted abstracts are strongly encouraged to submit a full paper for the conference proceedings.

Important Dates:

July 15, 2011:	Abstract submission opens
October 1, 2011:	Abstract Submission closes
November 30, 2011:	Notification of acceptance of abstracts
March 1, 2012:	Full papers due



MEETINGS & WORKSHOPS

Announcement for an AGU 2011 fall meeting session on
Model/Parameter Uncertainty in the Subsurface
and Impacts on Risk and Decision Making (session H80)

Abstract:

Many challenges for prediction and decision-making under uncertainty arise in the subsurface (e.g. groundwater contamination, CO₂ sequestration, nuclear waste storage). This session combines three aspects: Model/parameter identification, risk assessment and decision-making. We encourage presentations that address uncertainty in parameter identification and propagation of uncertainty to response predictions. Such models serve as tools in risk assessment or decision-making, and address: What can happen? What is the probability it occurs? What are the consequences? Decision-making under uncertainty approaches must incorporate the risk of 'failed' decisions, consequences and their probability of occurrence.

Please consider your valuable research work for submission to this session, and forward this invitation to colleagues of yours who might be interested as well.

Best regards,

Wolfgang Nowak, University of Stuttgart
Diogo Bolster, Notre Dame University
Sean McKenna, Sandia National Laboratories
Sanjay Srinivasan, University of Texas

 **MEETINGS & WORKSHOPS**

Session Announcement

Dear Colleagues,

At the upcoming AGU Fall Meeting in San Francisco (5-12 Dec. 2011), we will organize the following session. This is the fourth year that this session has been successfully convened. Last year, we had two oral slots and one poster slot. Please consider submitting an abstract. The deadline for abstract submission is August 4, 2011.

Session H71. Complexities of Flow and Transport in Porous Media Applications of porous media science have been traditionally in geological systems, where single/multiphase flow and transport are the dominant physical processes. But applications of this science can also be found in industrial and biological porous media, such as fuel cells, paper pulp drying, microfluidic pumps, food production, filtration, textiles, plants, absorbing tissues, and biological tissues. These diverse disciplines have significant similarities in fundamental science. This session serves as a platform to bring together scientists who investigate flow and transport in porous media in various disciplines to discuss the progress in understanding the fundamentals as well as new investigation tools and numerical models.

Convener(s):

Vahid Joekar-Niasar, Utrecht University (joekar@geo.uu.nl)

S. Majid Hassanizadeh, Utrecht University (hassanizadeh@geo.uu.nl)

Rainer Helmig, Universität Stuttgart (rainer.helmig@iws.uni-stuttgart.de)

 **MEETINGS & WORKSHOPS**

PEDOFRACT VII International Workshop on “Scaling in Particulate and Porous Media: Modelling and Use in Predictions”.

We are pleased to inform you by this mail the first announcement of PEDOFRACT VII: International Workshop on "Scaling in Particulate and Porous Media: Modelling and Use in Predictions", to be held in A Coruña, Spain, from 14th to 17th of May, 2012.

This will be the VII International meeting of the "Seminario de Fractales Aplicados a las Ciencias de la Naturaleza" that has been organized by the Fractal Applications Group from the Technical University of Madrid since 1992. The workshop is aimed at bringing together applied mathematics and porous media physics, and to promote quantitative description of soil and porous media complexity and consequences for flow and transport at scales ranging from pore surfaces and pore shapes to landscapes. We hope to foster interactions between theoreticians and practitioners in these fields and we particularly encourage participation of students and young scientists.

The theme of the PEDOFRACT VII meeting reflects the interest in scaling porous and particulate materials that exists across a broad spectrum of the scientific and engineering communities. The PEDOFRACT VII aims to facilitate networking and interactions, and to leverage collective thinking within and between those communities.

Group on Fractals and Applications in Soil and Environmental Sciences, Technical University of Madrid, UPM, Spain (www.etsia.upm.es/pedofract/)

Local Organizers: Soil and Environmental Sciences Research Group, Universidade A Coruña (Spain)

Further information may be found in: www.etsia.upm.es/pedofractvii/
e-mail: pf12.agronomos@upm.es

On behalf of the Organizing Committees:

M.A. Martin, Department of Applied Mathematics, Technical University, Madrid, Spain
Y.A. Pachepsky, United States Department of Agriculture, Beltsville, USA.



MEETINGS & WORKSHOPS

Call for Papers

MSDL

Conference on Modelling
Storage in Deep Layers



DEDICATED TO THE MEMORY OF
MAGNE ESPEDAL,
RICHARD E. EWING AND
ECKHARD FEIN.

SCHWETZINGEN CASTLE

GERMANY

October 11-13, 2011

<http://www.techsim.info>
conference@techsim.info

CONFERENCE TOPICS

- Modeling and Computation of CO₂ sequestration and waste disposals in deep geological layers.
- Methods like multiscale modeling, adaptivity, flexible and reliable discretizations, fast and robust solvers, high performance computing.

INVITED SPEAKERS

Sabine Attinger (Jena), Mike Celia (Princeton), Yalchin Efendiev (College Station), Majid Hassanzadeh (Utrecht), Klaus Johannsen (Bergen), Svetozar Margenov (Sofia), Mary Wheeler (Austin).

ORGANISATION

Rainer Helmig (Stuttgart), Oleg Iliev (Kaiserslautern), Raytcho Lazarov (College Station), Jörg Mönig (Braunschweig), Thomas Russell (Arlington), Gabriel Wittum (Frankfurt).

Fraunhofer ITWM, GCSC Frankfurt, GRS Braunschweig, STZ "Simulation in Technology"

MEETINGS & WORKSHOPS

Registration

Please download the Registration Form (PDF, 50 KB) from

www.bgr.bund.de/hydro-arid-2012

and send it via email to hydro-arid-2012@bgr.de.
Registration deadline is November 30, 2011.

Registration Fees

Regular: 180 Euro by September 30, 2011 and
240 Euro after October 1, 2011.
Students: 120 Euro (provide proof).

Important Deadlines

Registration deadline: **November 30, 2011**
Abstract submission deadline: **October 31, 2011**

Sponsors



International Conference

Hydrogeology of Arid Environments

Second circular

Hannover - Germany

March 14 – 17, 2012



 FH-DGG Working Group
"Hydrogeology of Arid Environments"

 Technische Universität Darmstadt
IAG

 BGR
Federal Institute for Geosciences
and Natural Resources (BGR)



JOB OPPORTUNITIES

Assistant/Associate Professor in Soil Mechanics

Engels -- Faculty/department Civil Engineering and Geosciences

Level PhD

Maximum employment 38 hours per week (1 FTE)

Duration of contract 4 years initially

Salary scale €3195 to €5920 per month gross

Civil Engineering and Geosciences

The Faculty of Civil Engineering and Geosciences provides leading, international research and education in road and water engineering, earth sciences, traffic and transport control, and delta technology. Innovation and sustainability are central themes. The research addresses global social issues and is closely interwoven with education as well as with the work carried out by a broad spectrum of knowledge institutions. The faculty consists of 17 sections distributed among the Departments of Design & Construction, Hydraulic Engineering, Transport & Planning, Water Management and Geotechnology.

Delft University of Technology is the largest technical university in the Netherlands and internationally leading in scientific research. The Geo-Engineering Section resides within the Department of Geotechnology, which is one of five departments within the Faculty of Civil Engineering and Geosciences. There is considerable scope and encouragement for interdisciplinary research. Currently there are collaborations with the Sections of Structural Mechanics, Hydraulic Engineering, Offshore Engineering, Applied Geology, Petroleum Engineering and Applied Geophysics and Petrophysics.

The Geo-Engineering Section has nine full-time and eight part-time academic staff members, a support staff of four, and around 30 PhD and post-doctoral researchers. Areas of expertise include soil mechanics, foundation engineering, underground space technology, engineering geology and geo-environmental engineering. The section boasts a world-class experimental laboratory including two geotechnical centrifuges and excellent computational facilities. It has close links with the onshore and offshore industries and with the Dutch research institute Deltares.

Job description

Applications are invited for an Assistant/Associate Professor in Soil Mechanics, to be based within the Geo-Engineering Section in the Faculty of Civil Engineering and Geosciences. The section focuses on internationally leading research into the testing, characterisation and modelling of, and engineering in, problematic and heterogeneous soils. Current research initiatives include the short- and long-term behaviour of deltaic soft clays and organic soils such as peat, the liquefaction and internal erosion of loose sands and other estuarial deposits, and the behaviour of stiffer clays associated with deep geological disposal. Research is also being conducted on geo-materials arising from industrial processes. Applicants from any area of experimental or computational soil mechanics are welcome to apply. Particular areas of interest for the section include the mechanics of soft soils, the



JOB OPPORTUNITIES

mechanics of unsaturated soils, offshore geo-mechanics, and numerical methods. The successful candidate will be expected to contribute fully to the educational activities of the Geo-Engineering Section at the undergraduate and post-graduate levels.

Requirements

Applicants should possess a PhD in Soil Mechanics or a related discipline. They should be able to demonstrate outstanding research potential and have published in peer-reviewed, international scientific journals. The successful candidate will be expected to initiate, acquire, execute and coordinate research projects. Team-building qualities and communication skills are therefore important. Close cooperation with other members of the scientific staff of the section and wider university is essential. Inspiring lecturing skills are considered crucial for stimulating student interest.

Conditions of employment

Initially this will be a temporary contract for four years, with the intention of converting the contract into permanent employment after four years. The salary of the Assistant Professor is based on scale 11 or 12 (maximum € 4970 gross per month with a full-time appointment) and for the Associate Professor it is based on scale 13 or 14 (maximum € 5920 gross per month with a full-time appointment). The TU Delft also has an attractive package of secondary employment benefits, such as a flexible working week, a free ADSL connection at home and the opportunity to put together an individual remuneration package via the individual choice model terms of employment. Benefits and other employment conditions are in accordance with the Collective Labour Agreement for Dutch Universities. TU Delft has signed the Charter Talent to the Top and wants to increase the number of women within its staff. Women are especially encouraged to apply. TU Delft sets specific standards for the English competency of the teaching staff. TU Delft offers training to improve English competency.

Information and application

For more information about this position, please contact Prof. M.A. Hicks, phone: +31 (0)15-2787433, e-mail: m.a.hicks@tudelft.nl. To apply, please e-mail a detailed CV, a list of publications, three references and a letter of application by 1 June 2011 to Mr. W.A. Maertens, Recruitment-CITG@tudelft.nl.

When applying for this position, make sure to mention vacancy number CITG11-16.



RESEARCH POSITIONS

Imperial College
London

DEPARTMENT OF
EARTH SCIENCE AND ENGINEERING



PhD Studentship: Rock Fracture and Fragmentation

Background: The Rio Tinto Centre for Advanced Mineral Recovery was founded in 2008 in the Department of Earth Science and Engineering, Imperial College London. The Centre is a partnership between Imperial College and Rio Tinto, one of the world's largest mining companies, and is aimed at developing safer, more efficient and environmentally friendly methods of mining - the "mine of the future". One of the projects within the centre is *Rock Fracture and Fragmentation*, which is aimed at developing computational tools to study the fracture, fragmentation and flow of rock within underground mines that are being mined using the block caving method.

Technical Scope: The objective of this project is to undertake and disseminate research in the computational modelling of rock fracturing and fragmentation processes. Specifically, the student will develop methods for the validation and verification of numerical simulation methods for rock fracture and fragmentation, ranging from physical validation of the fracturing criteria, simulation of gravity driven fall, and deformation under tension and compression.

Requirements: Applicants should have an undergraduate degree in engineering, physics, geophysics, applied mathematics, or computer science. Applicants should also possess the following knowledge and skills:

- Solid mechanics: knowledge of continuum mechanics and fracture mechanics.
- Numerical methods: knowledge of finite element methods and/or discrete element methods.
- Scientific programming: ability to program in a scientific programming language such as C/C++, Fortran, Matlab.
- Communication: excellent writing and presentation skills.

Other details: This is a 3-year PhD studentship, paying a non-taxable bursary of £16,000 per year. The student will work under the supervision of Prof. Robert Zimmerman and Dr. Adriana Paluszny, with frequent interaction with Rio Tinto engineers, and other members of the research staff at the Centre.

Application Procedure: To apply, send a copy of your CV, including academic transcripts, to Prof. Robert Zimmerman, Department of Earth Science and Engineering, Imperial College London, r.w.zimmerman@imperial.ac.uk. The closing date for applications is 15 August 2011.

Consistently rated amongst the world's best universities, Imperial College London is a science-based institution with a reputation for excellence in teaching and research.



RESEARCH POSITIONS



P.O. Box 42842 · Houston, Texas 77242-2842
Tel: 832-295-2365 · Fax: 832-295-2263 · www.miswaco.com

Research Engineer position at M-I SWACO

The drilling fluids R&D department in Houston invites applications for a Research Engineer position at its Houston Headquarter. The candidates are expected to have a Master's degree in engineering or science. We are looking for candidates who can lead our efforts in laboratory equipment design and setup for studying drilling fluids, and fluid-rock interactions in solving drilling-related problems such as lost circulation and wellbore strengthening. The candidates are expected to have strong research experience and problem solving skills in drilling and wellbore stability, lab testing techniques, and instrumentations. The candidates will actively interact and collaborate with other members of the R&D department and strong communication skills are required. If you have the qualifications listed above, please send your resume via email to Dr. Quan Guo at gguo@miswaco.slb.com.

About M-I SWACO

With over 13,000 employees in more than 75 countries around the world, M-I SWACO, a Schlumberger company, is a vital part of the world's hydrocarbon exploration and production industry. We are the leading supplier of drilling fluid systems engineered to improve drilling performance by anticipating fluids-related problems, fluid systems and specialty tools designed to optimize wellbore productivity, production technology solutions to maximize production rates, and environmental solutions that safely manage waste volumes generated in both drilling and production operations. M-I SWACO is an Equal Opportunity Employer.



RESEARCH POSITIONS

Postdoc Position Available

University of Waterloo

A postdoctoral fellow (PDF) is sought to develop novel simulation methods for carbon sequestration problems. Working within the Earth Sciences and Civil & Environmental Engineering departments at the University of Waterloo, this position will be part of a wider multi-university research program on the risk assessment and management of carbon capture and storage in a Canadian context.

The initial contract for the position will be for one year, with the potential for an extension up to three years. The qualified applicant will have a proven background in development of numerical methods and simulations codes based on the finite element method. They will have a proven publication record. Experience with Matlab, FORTRAN and/or C/C++ is a must. Experience with the eXtended or Generalized Finite Element Method (XFEM/GFEM), two phase flow in geological formations and/or uncertainty analysis will be beneficial.

Applications must include: a cover letter giving a brief description of the Applicant's interest in the position and qualifications, a curriculum vitae and a list of references. Applications are to be sent to Dr. R. Gracie at rgracie@cee.uwaterloo.ca.



RESEARCH POSITIONS

Postdoc Position Available

University of Wyoming

An NSF-funded postdoctoral position is available 6/1/2011, with an annual stipend of 42,000 USD plus full employee benefits. The position is for 2 years, with potential extension to the 3rd year pending funding availability. The project will use parallel simulation to conduct porous medium permeability upscaling & uncertainty analysis in carbon geostorage modeling, in collaboration with the Los Alamos National Laboratory. The research code used is PFLOTTRAN: <http://ees.lanl.gov/pflotran/>

A proof-of-concept study has been completed & is described here:

<http://pubs.acs.org/doi/abs/10.1021/es103187b>

Required skills: Programming skills; familiarity with numerical techniques for solving partial differential equations. Preferred skills: Experience with high performance computing (HPC) and Message Passing Interface (MPI); HPC-related libraries, e.g., PETSc, HDF5, mesh partitioning. Interested applicant should email a CV to Dr. Ye Zhang (yzhang9@uwyo.edu). The CV should include the name and contact information of 3 referees and a concise (up to 2 pages) description of research interest. The applicant should hold a PhD degree at the time of the appointment. Application review begins now and will continue until the position is filled.

The University of Wyoming (UW) is an affirmative action/equal opportunity employer. UW is dedicated to ensuring a safe and secure environment for our faculty, staff, students, and visitors. To achieve that goal, UW conducts background investigations on all prospective employees.

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<http://faculty.gg.uwyo.edu/yzhang/>



RESEARCH POSITIONS

Postdoc Position Available

University of Wyoming

A postdoctoral position is available 9/1/2011, with an annual stipend of 42,000 USD plus full employee benefits. The position is for 2 years, with potential extension to a 3rd year pending funding availability. The project will conduct inverse modeling of enhanced oil recovery or CO₂ storage to estimate effective permeability parameters for a set of hierarchical reservoir models. The research will be conducted in collaboration with Schlumberger.

Examples of hierarchical reservoirs models are described:

http://faculty.gg.uwyo.edu/yzhang/Publications/TIPM_2011.pdf

<http://faculty.gg.uwyo.edu/yzhang/Publications/2010WR009707.pdf>

Required skills: familiarity with numerical techniques for solving partial differential equations; Preferred skills: inverse modeling and history matching of numerical simulation models. Interested applicant should email a CV to Dr. Ye Zhang (yzhang9@uwyo.edu). The CV should include the name and contact information of 3 referees and a concise (up to 2 pages) description of research interest. The applicant should hold a PhD degree at the time of the appointment. Application review begins now and will continue until the position is filled.

The University of Wyoming (UW) is an affirmative action/equal opportunity employer. UW is dedicated to ensuring a safe and secure environment for faculty, staff, students, and visitors. To achieve that goal, UW conducts background investigations on all prospective employees.

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GE220

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RESEARCH POSITIONS

Graduate Research Assistantships

University of Nebraska-Lincoln

Job Descriptions and Requirements: Research assistantships are available for PhD students starting in fall 2011 to work in areas of porous materials and periodic structures for noise control. The positions include a tuition waiver and monthly stipend. Students who have completed a Master degree in mechanical engineering, architectural engineering, physics and other related fields are preferred, but exceptional students who have completed a Bachelor's degree and have experience related to the research will also be considered. Funding is also available for international students with good English communication skills (written and oral).

Information and Application: For more information about this position, please contact Dr. Siu-Kit Lau, Phone: (402) 554-3861, email: slau3@unl.edu.

To apply, please email a cover letter and a resume to Dr. Siu-Kit Lau. To meet deadlines for the coming fall semester, candidates should send information as soon as possible.

Postdoctoral Fellow Vacancy

A Postdoctoral fellow is sought for the Department of Geotechnical Engineering at Tongji University, Shanghai, China. The appointee will work with Prof. Mingjing Jiang contributing to the development of constitutive models of problematic soils and numerical analysis methods. This is an excellent opportunity for an enthusiastic, highly-motivated individual to broaden his/her horizons through active collaboration with researchers across the world.

Applicants should have a PhD (awarded or near completion) in geotechnical engineering or relevant majors. A strong background and preferably experience in finite element method (FEM) and discrete element method (DEM) is preferred. Good scientific writing skills are essential.

The post is available immediately and is funded for two years in accordance with the regulation set by Tongji University.

If you are qualified, please send your resume to Prof. Mingjing Jiang, email: ingjing.jiang@tongji.edu.cn. For further information please contact Dr. Fang Liu, email: liufang@tongji.edu.cn.



RESEARCH POSITIONS

Post-Doctoral Research Position Available

Pore-scale numerical modelling of microbial processes during bioreduction of metals

**Department of Civil and Environmental
Engineering, University of Illinois**

Candidates are invited to apply for a post-doctoral research assistant on a multi-disciplinary Department of Energy funded project that integrates bench-scale, micro-fluidic, and flow-cell experiments with numerical models to examine electron transfer processes during bioreduction of metals and radionuclides.

The project focuses on microbial interactions among dissimilatory metal-reducing bacteria, syntrophs and methanogens in biofilms developed in microfluidic devices that simulate bioremediation processes of the contaminated surface. The post-doc will work closely with other graduate students and researchers, and be responsible for pore-scale numerical modelling of reactive transport with metal reduction and multi-species biofilm growth, and coupling of pore scale and continuum-scale models.

Experience with lattice-Boltzmann, pore network, and/or individual-based models is desired; knowledge of reactive transport and biofilm modelling, electron transfer processes, and current metabolic modelling approaches would also be beneficial. The position is available beginning October 1, 2011.

Please send a current CV, research statement, and the names of three references by email to:

Professor Al Valocchi (valocchi@illinois.edu).



RESEARCH POSITIONS

2 year Postdoc Position Available

Shell R&D laboratory Rijswijk, The Netherlands

Multi-phase flow in porous media (Experimentalist)

One of the major research topics in Shell's R&D laboratory in the Netherlands is Enhanced Oil Recovery. One way to enhance oil recovery is by injecting mixtures of surfactants and / or polymers (and other chemical additives) to mobilize additional oil and transport it through the subsurface reservoir. To better understand the fundamental physics of multiphase flow in porous media in general and the mentioned enhanced oil recovery techniques in particular, Shell is developing a comprehensive experimental and modelling framework. The vacancy described here relates mainly to the experimental aspects.

One of the experimental components in this framework is a transparent micro-model (microfluidics cell) in which the various fluid- / thermo- dynamics processes can be studied in detail on the scale of individual pore and channels and also at high time resolution. Two basic setups are discussed at the moment where one is a more standard setup working at ambient pressures and temperature using commercially available components (e.g. optical microscope) and the second setup is rated for high pressures and temperatures and requires long working-distance microscope optics.

The postdoc would be involved in setting up the experiment(s) including the optics and other analytical techniques, the experimental work itself (potentially advising students for the experimental work) and the data analysis (e.g. automated image analysis). The focus of the work is on providing a solid quantitative, physical understanding of the key mechanisms involved at this scale of investigation and combination of experimental results with theoretical and numerical work conducted by a second Postdoc is desired. A strong interaction with academic peers will be important for the success of this work.

The successful candidate will be working in a strongly motivated group of researchers interested in exploring the more fundamental aspects of multiphase flow in porous media and Enhanced Oil Recovery.

For more details please contact:

steffen.berg@shell.com



RESEARCH POSITIONS

Marie-Curie Initial Training Network

Early Stage Researcher (PhD) and Experienced Researcher (Post-doctoral)

The regeneration and re-use of contaminated land and groundwater is an important ambition of European sustainable development strategies. Managing the legacy of contaminated sites across Europe and improving the quality and quantity of groundwater resources requires the development of innovative and sustainable remediation concepts, which must consider a range of environmental, technical, social and economic factors.

Decision-making frameworks must also be developed for successful implementation of sustainable remediation strategies. *In situ* remediation (ISR) is typically the most sustainable approach for soil and groundwater contamination, with the potential to manage complex problems which would not be possible with traditional methods. However, many ISR concepts and applications remain under-developed in Europe.

Meeting these challenges requires a more integrated analysis represented in this project. The network will provide high-quality research training to young scientists, through fully-funded Early Stage Researcher (PhD level) and Experienced Researcher (Post-doctoral level) fellowships. The academic partners include leading European university research groups in this field. The industry partners include all stakeholder interests (site owners, commercial R&D, regulatory bodies, water utilities, consulting firms, public outreach, SMEs and multinationals).

The team of 14 fellows employed by ADVOCATE will research scientific topics which cover a wide range of important pollutant problems within the training themes described below. The project has an international advisory group and will undertake a comprehensive programme of knowledge transfer activities with other scientific networks and industry bodies in this field. The fellowships in ADVOCATE will start in October 2011.



RESEARCH POSITIONS

Research training themes

- ADVOCATE will provide applied research training in the following areas
- Socio-economic and sustainability aspects of *in situ* remediation
- Linking soil and vadose zone processes to *in situ* remediation of groundwater
- Groundwater-surface water interaction and *in situ* remediation
- *In situ* remediation of metal-contaminated sites
- Developing *in situ* treatment strategies for mixed contaminants
- Enhancing bioremediation processes
- Performance assessment framework, methods and tools
- Network knowledge transfer

Research training partners

The research training partners in ADVOCATE are:

- University of Sheffield (www.shef.ac.uk/)
- Université de Liège (www.ulg.ac.be/)
- Helmholtz Centre for Environmental Research (www.ufz.de/)
- EAWAG (www.eawag.ch/)
- Krakow University of Science and Technology (www.agh.edu.pl/)
- Contaminated Land: Applications in Real Environments Ltd (www.claire.co.uk)
- Flemish Institute for Technological Research (www.vito.be/)
- Hydrogeotechnika Ltd (www.hydrogeotechnika.pl/)
- Federal Office of the Environment of Switzerland (www.bafu.admin.ch/)

Eligibility conditions apply, refer to:

ftp://ftp.cordis.europa.eu/pub/fp7/docs/calls/people/m_gfamcitn_201001_en.pdf.



ABOUT INTERPORE

INTERPORE: "Similar solutions to diverse applications."

The *International Society for Porous Media (InterPore)*

is a non-profit-making independent scientific organization established in 2008.

The general aim of the Society is to advance and disseminate knowledge for the understanding, description, and modeling of natural and industrial porous media systems.

Key Aims of the Society

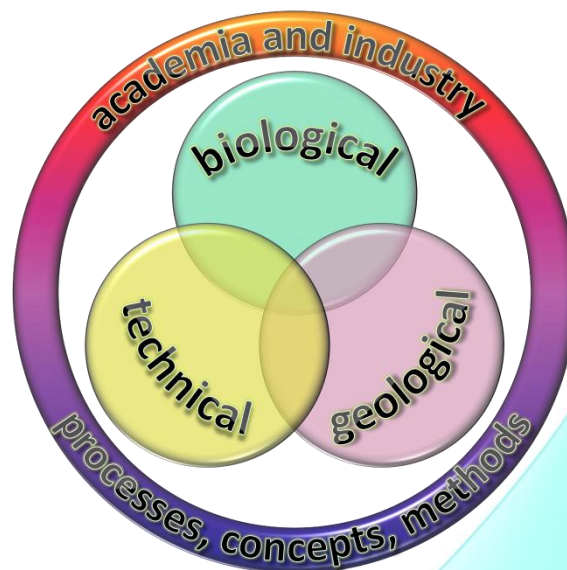
- facilitate connections and collaboration among industrial and academic researchers;
- connect porous media theoreticians, modellers, and experimentalists;
- provide a forum for exchanging ideas and expertise for the improvement of porous media models;
- identify research questions that will lead to major improvements in the theories and models of complex porous media and to define modelling challenges;
- facilitate training and education.

Examples of Industrial & Natural Applications of Porous Media

Fuel cells, paper-pulp drying, food production and safety, filtration, concrete, ceramics, moisture absorbents, textiles, paint drying, polymer composites, and detergent tablets. The most well-known natural porous media involving multiphase flow and transport are soils, aquifers, and reservoirs. But such processes also occur in biological tissues and plants. Recently, there has been growing interest in the biomechanics of porous tissues, engineered tissues, and in-tissue drug delivery.

Why should you join InterPore?

InterPore is uniquely positioned to connect experts and practitioners from a diverse field of both scientific and engineering know how as well as industrial applications. This enables faster and unexpected connections resulting in quicker learning and accelerated innovation.



Register online and become a member now!

Website: www.interpore.org

Contact: info@interpore.org



ABOUT INTERPORE

Imprint

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Articles and news items on the study and characterisation of porous media,
especially when relevant to other types of porous media,
are welcomed for publication in this newsletter, issued three or four times a year.

Copy deadline for next issue: October 31st 2011

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