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What's New at ISCP

Season's Greetings From the President

Season's greeting and a wish for a joyful and prosperous new year!

Next year will be a busy year for the concrete pavement practitioners. The Society will start off the year with a Board and open meeting on Saturday, January 8, 2005 at 6 PM during the annual meeting of the Transportation Research Board. This will be followed by the International Conference on Best Practices for Ultrathin and Thin Whitetoppings, in Denver, Colorado, April 12 to 15, 2005. The Society is a sponsor of the conference. The highlight of 2005 comes in mid-August when the Society will hold the 8th International Conference on Concrete Pavements, in Colorado Springs, Colorado. The 8th conference follows the traditions of the past seven conferences, the first six of which were organized by Purdue University. The Society has continued the partnership with Purdue University, Federal Highways Administration and the American Concrete Pavement Association. In addition, several organizations, including the Portland Cement Association and the Transportation Research Board, have actively supported the international conferences. We are expecting a record attendance at the 8th conference, based on abstract submission and inquiries received. The 7th conference attracted attendees from 30 countries. For the 8th conference, we are expecting over 400 attendees from over 50 countries.

Details of the Board/open meeting and the two conferences are provided elsewhere in the newsletter and are available on the Society's website. We invite you to attend the Board/open meeting in January and hope you can attend one or both conferences next year.

Please contact me, Dan Zollinger or Mark Snyder (contact information at bottom of the newsletter) if you have any questions related to the Society's activities or have any suggestions.

Shiraz Tayabji, President, ISCP
stayabji@concretepavements.org

ISCP Annual Board of Directors and Membership Meeting

Once again, the *International Society for Concrete Pavements* is holding a meeting for board members as well as general members to coincide with the annual TRB meeting. Topics to be discussed include:

- Solicitation for Officers and Board Members for term Starting January 2006
- Final planning of the 8th International Conference
- Discussion of planned hands-on workshops involving pavement instrumentation, etc.
- Review plans for 8th Conference paper submittals
- *International Journal of Concrete Pavements* status
- International chapters
- Budget
- Other topics to be determined

A full agenda will be e-mailed to members shortly.

The meeting date has been changed from the traditional Thursday of the TRB week to the Saturday before the TRB Annual Meeting. Please note that the time for the meeting has also been recently changed to accommodate participants traveling to Washington, DC area.

Date: **Saturday, January 8, 2005**
 Time: **6p - 10p**
 Where: **North Cotillion Ballroom**
Marriott Wardman Park Hotel
Washington, DC, USA

International Conference on Best Practices for ULTRATHIN and THIN Whitetoppings

The *International Journal of Concrete Pavements* is a co-sponsor of the International Conference on Best Practices for ULTRATHIN and THIN Whitetoppings which is scheduled for April 12-15 in Denver, Colorado, USA at the Hilton Denver Tech South Hotel. Also co-sponsoring this conference are the Federal Highway Administration, Colorado Department of Transportation, American Concrete Pavement Association, and the Transportation Research Board.

Papers and conference presentations are solicited both nationally and internationally on a wide range of topics dealing with UTW and TWT innovations, including (but not limited to) the following:

- selecting the right projects for UTW and TWT
- pavement analysis and design
- construction
- concrete materials for UTW and TWT
- pavement performance; successful jointing patterns
- whitetopping repair and rehabilitation.



Papers and presentations dealing with emerging topics related to UTW and TWT are also encouraged. Papers and presentations dealing with all aspects of UTW and TWT technology, technology transfer, and forensic topics are encouraged as well.

Selection of papers will be based on near-term applicability to practice. As such, the conference is expected to be of significant benefit to practicing engineers and construction professionals. The presentations will include the most comprehensive coverage on UTW and TWT technologies.

For more information on registration, hotels, area attractions, and paper submissions, please go to

<http://www.concretepavements.org/Membership/Whitetopping%20Conference.pdf>

International Journal of Concrete Pavements Call for Papers

In an effort to disseminate new information and provide on-going benefits to ISCP members in good standing, the Society is launching a new publication. The *International Journal of Concrete Pavements*, the new peer-reviewed electronic journal of the International Society for Concrete Pavements, continues the invitation for submittals of papers for review and possible inclusion in future issues of the Journal. For manuscript guidelines and editorial policies, please go to

www.concretepavements.org/Membership/ejournalCFP.htm

Specific questions on the Journal can be directed to Norb Delatte at n.delatte@csuohio.edu.

Updates on the *International Journal of Concrete Pavements* will be available in upcoming ISCP Quarterly E-Newsletters as well as on the [ISCP webpage](#).

Interested in ISCP Membership?

We encourage all of our colleagues to contribute to the further advancement of the concrete pavements and materials professions by joining the International Society for Concrete Pavements. At US\$50/year, individual memberships are relatively inexpensive (and are offset by reduced registration rates at ISCP events). Student membership is only US\$25/year. Members also have online access to discussion forums, subscription to the *International Journal of Concrete Pavements*, and direct emailing of the ISCP Quarterly E-Newsletter among other resources. For more information on membership, contact Mark Snyder (Secretary-Treasurer) at msnyder@concretepavements.org.

Countdown to Colorado

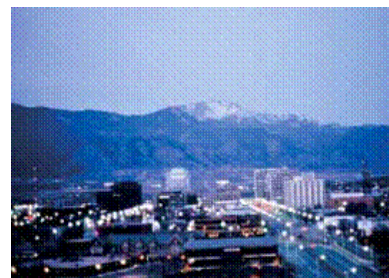
Occasion already passed!

Highlights of the Conference

The 8th International Conference on Concrete Pavements is scheduled for August 14-18, 2005 in Colorado Springs, Colorado, USA at the Sheraton Colorado Springs Hotel. This conference will carry on the tradition of the first seven international conferences previously organized by Purdue University. As with the previous international conferences, the focus of the eighth conference will be to present information on new technologies related to design, construction, and rehabilitation of various types of concrete pavements. The theme of the conference will be *Innovations for Concrete Pavement: Technology Transfer for the Next Generation*.

The objective of the conference is to present the latest information on economical and practical aspects of hydraulic cement concrete pavement design, construction, materials, maintenance, performance, evaluation, and structural rehabilitation, which are essential for achieving long lasting, high-performance concrete pavements.

A total of about 65 papers will be presented excluding workshop presentations. Also, it is expected that another 10-15 papers will be selected for publication only. In previous conferences papers have been received from many countries (Argentina, Australia, Belgium, Brazil, Canada, France, Germany, Italy, Japan, Mexico, The Netherlands, South Africa, Sweden, Taiwan, UK, and USA). Both paper copies and a CD will be distributed to each registrant at the conference.



Technical Program

Board Meeting:

An ISCP board and open meeting will be scheduled for Sunday, Aug 14. All participants are welcome to attend.

Overall Program

It is planned to hold the following four workshops on Sunday afternoon with a repeat on Tuesday afternoon.

1. Pavement design – the mechanistic-empirical methodology
2. Concrete materials and mixture design – new developments
3. Concrete pavement construction – new tools
4. Concrete pavement repair and rehabilitation strategies

The Tuesday construction workshop will be an outdoor event and will involve pavement instrumentation demonstration. Also, on Tuesday, a workshop on precast paving will be held.

Technical Sessions:

Sixteen technical sessions will be held Monday morning through Wednesday afternoon. A plenary session on Monday morning will kick off the technical program.

Technical Visits:

A technical visit is planned for Thursday and may include visits to construction projects.

For more specific technical program information, please see the [conference brochure](#).

Area Attractions



Area attractions include Pikes Peak, Garden of the Gods, Cave of the Winds, Seven Falls, Cog Railway, Royal Gorge Bridge, Manitou Cliff Dwellings, Air Force Academy, Peterson Air Force Base, U.S. Olympic Training Center, Pro Rodeo Hall of Fame and American Cowboy Museum, Miramont Castle, the Flying W Ranch, and the Cheyenne Mountain Zoo.

Excursions are planned for conference attendees (at an additional cost) for the Pikes Peak Cog Train, the U.S. Air Force Academy, the Garden of the Gods, Old Colorado City, as well as a fly fishing expedition. Many outdoor activities are also available. See the [conference brochure](#) for more details.



Registration Fees and Information

- \$500 - Advance Conference Registration – **by April 1, 2005**; Registration includes breakfast, lunch, reception, dinner on August 15, 2005, proceedings, session attendance, and 2005 ISCP membership (a \$50 value).
- \$600 - Conference Registration **after April 1, 2005**; Registration includes breakfast, lunch, reception, dinner on August 15, 2005, proceedings, session attendance, and 2005 ISCP membership (a \$50 value).
- \$250 - Student Registration; Registration includes breakfast, lunch, reception, dinner on August 15, 2005, proceedings, session attendance, and 2005 ISCP membership (a \$25 value).
- \$100- Spouse Program. Registration includes reception Sunday, August 14, dinner Tuesday, August 16, breakfast and lunch in the exhibit area, and hospitality suite.
- U.S. Government Agencies, see the registration form for reduced rates.

To register online, visit: www.conf.purdue.edu/concrete

Registration Notes

1. Year 2005 ISCP members (Year 2005 membership fee already paid), a \$50 discount (\$25 for students) will be available.
2. One author is required to register in advance for each paper accepted for presentation. Otherwise the paper will not be included in the final program.
3. A conference hat and t-shirt will be provided to those who register by April 1, 2005. Please indicate your t-shirt size on the registration form.



Important Dates for the 8th International Conference on Concrete Pavements

February 15, 2005
April 1, 2005
May 1, 2005

Completed papers due for review
Review completed, authors notified of final disposition of their papers
Electronic versions of final papers due

Industry Notes

High early strength for quick repairs: the 4x4 concrete system



Officials from several DOTs got a firsthand look at a new method for quickly repairing concrete at a demonstration in October in Massachusetts. Using local materials and a combination of admixtures, a Degussa Admixtures crew poured a section of 400 psi flexural strength concrete that supported a ready-mix concrete truck after just four hours of curing.

4x4 Concrete is a system, not simply a mix design. It is a blend of materials, produced and placed under specific procedures. The name 4x4 Concrete originates from concrete that obtains at least 400 psi flexural strength within four hours of placement.

Read more about the system and project applications at

<http://www.masterbuilders.com/4x4>.

http://www.aggregate-us.com/_aius/news/company/co_04_rmc.cfm

Concrete Groups Offer Free Access to Site on Latest Repair Practices

FixConcrete.org, a joint effort of the American Concrete Institute and the International Concrete Repair Institute, is holding a free membership drive. The site offers 500 videos on repair scenarios, including bridges and concrete roads—even geotechnical bolstering of settled structures. Read more in the October [issue](#) of *Concrete Monthly*, and visit the [site](#).

Source: Concrete Monthly, <http://www.concretemonthly.com/>
<http://www.fixconcrete.org/>

Colorado DOT Tests Sinusoidal Tining

In an effort to find a longitudinal tining pattern for sound control that does not lead to traffic wander, CDOT is testing various grooves. Most interesting is sinusoidal—S-shaped, meandering tining, which is being tested in one of seven 1,000-foot sections. Other sections experiment with Astroturf drag, saw grooves and more. Read more in the [CDOT Research Newsletter](#).

Source: Colorado DOT Research Newsletter
<http://www.dot.state.co.us/Research/2004-3.pdf>

Concrete Innovations Save Time for Belgian Firm

Facing a tight deadline, a Belgian construction company used several innovations on a 10-mile freeway project. They included a new 3-D imaging system for string-lining, slipforming using drier-than-normal concrete mixes, and slope-measuring sensors on pavers. See the [article](#) in *Roads & Bridges*.

Source: WisDOT's Research, Development and Technology Transfer program, Nov 2004
<http://www.dot.wisconsin.gov/library/publications/format/newsletters/research2work.htm>

Research News

ISCP board member selected for top laboratory position at ERDC

Dr. David W. Pittman was recently selected as director of the Geotechnical and Structures Laboratory of the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Miss. The ERDC is the premier research and development facility for the U.S. Army Corps of Engineers. It consists of seven laboratories at four geographical sites, with over 2,000 employees, \$1.2 billion in facilities, and an annual research program exceeding \$700 million. It conducts research in both military and civil works mission areas for the Department of Defense and the nation.

As director of the ERDC Geotechnical and Structures Laboratory (GSL), Pittman manages a \$70 million annual research program in soil and rock mechanics; earthquake engineering and geophysics; vehicle mobility and trafficability; and pavements technology. GSL engineers and scientists research the response of structures to weapons effects; investigates methods for making concrete and other materials more durable and economical; studies the application of explosives technology to combat engineering; and investigates the behavior of earth/structure systems subjected to blasts and projectile penetration.

Prior to his current position, Pittman served as acting director of GSL (May 2002 to October 2004) and as the laboratory's deputy director. He has also held the positions of chief, GSL Airfields and Pavements Division, and assistant professor of civil engineering at Auburn University.

Pittman received his bachelor's and master's degrees in civil engineering from Mississippi State University in 1983 and 1988, respectively. He earned his doctorate in civil engineering from the University of Texas at Austin in 1993.

He is a member of several professional engineering societies, including the American Society of Civil Engineers, the American Concrete Institute, and the International Society for Concrete Pavements, where he serves on the board of directors. He is a registered professional engineer in the state of Mississippi.

Pittman and his wife, Andrea, live in Clinton, Miss., and have two daughters, Katarina and Isabella.

The *International Society for Concrete Pavements* would like to express congratulations to Dr. Pittman for this honor as well as his service to both the society and the concrete pavements field.

Source: <http://gsl.erdcl.usace.army.mil/>



5th international CROW-workshop on 'Fundamental modelling of the design and performance of concrete pavements' held in April

About every 4 years, an international workshop on concrete pavements is organized by CROW dealing with theories on which the design of concrete pavements is based and how to verify them in order to have them in line with practical performance. In 2004, this workshop was held on April 1-2 in Istanbul, Turkey. Some 33 experts from 13 countries participated in this theoretical workshop. The countries represented in this workshop were USA (10 participants), the Netherlands (6), Sweden (3), Belgium (2), Italy (2), South Africa (2), Turkey (2), Denmark (1), France (1), Germany (1), Japan (1), Spain (1), and Taiwan (1). During this workshop, three attendants were celebrated for having actively attended all five workshops: Mr. Carlos Jofré, Dr. Michael Darter and Prof. Andre Molenaar.



Because of different priorities within CROW, Delft University of Technology offered to organize the next workshop, which will probably be held in September 2006 in Antwerp, Belgium. The participants have greatly appreciated CROW's efforts for having organized the first five workshops.

The contributions of papers and presentations together with the statements, conclusions and recommendations are being published in the proceedings of the workshop and will be available to anyone who is interested. These proceedings are officially published as CROW Record 24 on a CD-Rom and can be ordered through the [CROW website](http://www.crow.nl).

A short general report about the findings of the workshop is currently available on the web and can be downloaded for free directly at

<http://www.crow.nl/engels/news/Content/General%20report%20on%20the%205th%20international%20CROW-workshop.html>

Source: <http://www.crow.nl/engels>

Prevention of Distress in PCC Pavements

The report "Material and Construction Optimization for Prevention of Premature Pavement Distress in PCC Pavements" was released on September 2004 by the Center for Portland Cement Concrete Pavement Technology, Iowa State University, and corresponds to the first of 5 phases of the initiative. The objective of phase I was to compile practical, easy-to-use testing procedures for identification and monitoring of material and concrete properties to ensure durable pavement. It involved a literature search and a survey of participating agencies and others in the portland cement concrete (PCC) paving community to gather information about best practices and solutions to common problems. Phase I also included developing standard test procedures for tests that may not have national standards and developing new tests as needed. A tech-transfer summary is available at

http://www.ctre.iastate.edu/pubs/t2summaries/mco_phase1.pdf

and the full report can be found at

http://www.ctre.iastate.edu/reports/mco_phase1_2004.pdf

Source: <http://www.pcccenter.iastate.edu/mco/>

Using Precast Concrete Panels for Pavement Construction



Purdue University's Joint Transportation Research Program has released a report that examines precast concrete panels methods developed in the United States and compares them to conventional concrete pavement such as jointed plain concrete pavement, jointed reinforced concrete pavement, and continuously reinforced concrete pavement.

A comprehensive review was conducted on various state-of-the-art methods in PCC pavement construction. The review describes the precast prestressed concrete panels method used in Texas, Super-Slab method in New York, Full Depth Repair method in Michigan, Stitch-in-Time method in Colorado, and the Four-by-Four Slab Replacement method in California. These methods were evaluated in terms of their design concepts, field

installation procedures, merits, pitfalls, costs, and applications.

The full report can be accessed through

http://rebar.ecn.purdue.edu/JTRP_Completed_Project_Documents/SPR_2779/FinalReport/spr_2779_final/InsideCover.pdf

Source: http://trb.org/news/blurbs_detail.asp?id=4098

For more information contact: Prof. Luh-Maan Chang, Purdue University, changlm@ecn.purdue.edu

Concrete Pavement Research in Progress

Below is a list of research in progress in the RiP database of the Transportation Research Board regarding concrete pavements. The database contains records of projects funded by Federal and State Departments of Transportation, as well as university transportation research. Complete detail information including an abstract is available:

[Effectiveness of Tire/Road Noise Abatement Through Surface Retexturing by Diamond Grinding for Project SUM-76-15.40](#)

Source Organization: Ohio Department of Transportation

[Rubbleization and Crack & Seal as Major Rehabilitation for Concrete Pavements](#)

Source Organization: Texas Department of Transportation

[Evaluation of Curing Membranes Effectiveness to Reduce Evaporation](#)

Source Organization: Texas Department of Transportation

[Performance of Old Concrete Under Thin Overlays](#)

Source Organization: Texas Department of Transportation

[Contribution of Tining to the Skid Resistance in Portland Cement Concrete Pavement](#)

Source Organization: Center for Transportation Research - University of Texas

Featured Thesis Abstract

Every issue, the ISCP Quarterly E-Newsletter features a recent thesis or dissertation relating to concrete pavements and materials from around the world. Interested individuals should submit their abstract, former university affiliation/advisor, and current position information to newsletter@concretepavements.org. This quarter, we have two featured abstracts. The first is from Dr. Jin-Hoon Jeong followed by an abstract from Dr. Stewart Bennie.

Characterization of Slab Behavior and Related Material Properties due to Temperature and Moisture Effects

Dr. Jin-Hoon Jeong
Currently at the Test Road Research Center
Highway & Transportation Technology Institute
Korea Highway Corporation
Ph.D. in Civil Engineering at Texas A&M University (2003)
Thesis Advisor: Professor Dan Zollinger

A concrete slab was constructed at the Riverside Campus of Texas A&M University to investigate environmental effects in terms of temperature and humidity on the behavior of jointed plain concrete pavements. The slab had daily periods of tensile and compressive strain corresponding to the daily changes in temperature and relative humidity of ambient air and slab. The trends in slab displacements and dowel behavior were clearly dependent upon the changes in ambient temperature and slab temperature gradients. Drying shrinkage, primarily in the vicinity of the top surface, appeared to cause an overall shift in both strain and vertical displacement of the slab over a two-year period after placement of the concrete. Desirable curing methods should be used to control the temperature and relative humidity of the slab. The effective curing thickness concept was introduced as a method to evaluate the effectiveness of a curing method. The surface relative humidity had the biggest influence on both the effective curing thickness and the rate of evaporation. Penman's evaporation model was modified based on data collected in a series of laboratory experiments and it could be used as a boundary condition in the modeling of temperature and moisture of the slab. A mathematical model was developed for the calculation of temperature and humidity distribution to help investigate the effect of different combinations of climatic factors, construction, and materials on the development of early-aged cracking and other distresses. This model is comprised of a nonlinear time-dependent partial differential equation and is solved by the finite element method. Using data collected from the test slab, thermal conductivity and moisture diffusivity were back-calculated to accurately represent temperature and moisture flow in hardening concrete pavement over time. Estimation of strength development of slab concrete using the predicted temperature and moisture is presented to show the feasibility of the applications of temperature and moisture prediction.

Development of a Performance Based, Integrated Design/Selection Mixture Methodology for Fiber Reinforced Concrete Airfield Pavements

Dr. Stewart D. Bennie
Currently a Team Chief Balanced Survivability Assessments
At the Defense Threat Reduction Agency
Ph.D. in Civil Engineering at the University of Maryland (2004)
Thesis Advisor: Professor Dimitrios G. Goulias

Recent advances in polymer technology have given rise to new research regarding conventional building materials like concrete and the rheological material properties of polymer fiber-concrete composites. Polymers such as polypropylene fiber are now the industry standard for manufacture of geosynthetics which are used as the structural element in earth walls, stabilized slopes, and to improve soft soil bearing capacity. Both industry and researchers now recognize the benefits of polypropylene fiber reinforced concrete in reducing temperature and shrinkage cracking and crack widths, which is an important distress criterion in airfield pavements. However, little attention has been given to the use of high tensile strength polypropylene as a structural component of concrete pavements. As important as the research, is the methodology used to obtain the results. There is a need to consider concrete mixture design and selection in conjunction with pavement design since specific mixture properties' behavior and performance characteristics are set by pavement design requirements. Such approach will permit the development of an integrated mixture selection-pavement design methodology. This study quantified the beneficial strength properties of small volume (less than 0.5%) polypropylene fiber reinforced concrete (FRC) as an airfield pavement to meet both military



and civilian aviation needs. Polypropylene fiber reinforcement in small volumes displays none of the historical problems of poor workability, or excessive pavement deflections associated with fiber-concrete composites in larger volumes. Through laboratory testing of material properties such as fatigue, toughness and flexural strength and computer modeling this composite showed a consistent improvement in those strength properties that would increase the life of the pavement structure under repetitive aircraft traffic. Perhaps, the most unique property of this composite is its ability to continue to absorb energy after first crack, ductile properties not typically associated with a brittle material like concrete. This increase in toughness is significant to the military in mitigating heaved pavement around bomb damaged runway craters during rapid runway repair. Analogues to safety glass, FRC will mitigate radial fracturing of airfield pavement located around the crater impact area reducing time to repair heaved pavement, an important criteria to air base survivability. This dissertation serves as a blueprint to comprehensively evaluate both design and performance of any fiber concrete composite.

Upcoming Events

84th Annual TRB Meeting

January 9-13, 2005 in Washington, D.C., USA

<http://www4.trb.org/trb/annual.nsf>

World of Concrete

January 18-21, 2005 in Las Vegas, Nevada, USA

http://www.worldofconcrete.com/content/splash_woc.htm

National Pavement Expo (20th Anniversary Show)

February 2-5, 2005 in Atlanta, Georgia, USA

<http://www.pavementonline.com/content/npe/index.asp>

XV Colombian Symposium about Pavement Engineering

March 9-13, 2005 in Melgar, Columbia

<http://fing.javeriana.edu.co/xvsimposiopavimentos/>

2005 International Symposium on Pavement Recycling

March 14-16, 2005 in São Paulo, Brazil

<http://www.abpv.org.br/simposiospbrazil.htm>

CONEXPO-CON/AGG 2005

March 15-19, 2005 in Las Vegas, Nevada, USA

<http://www.conexpoconagg.com>

International Conference on Best Practices for Ultrathin and Thin Whitetoppings

April 13-15, 2005 in Denver, Colorado, USA

<http://www.concretepavements.org/Membership/Whitetopping%20Conference.pdf>

Aggregates for Highway Construction--Characterization and Performance

May 3, 2005 in Wilmington, North Carolina, USA

http://trb.org/news/blurb_detail.asp?id=4419

1st European Airport Pavement Workshop

May 11-12, 2005 in Amsterdam, Netherlands

http://www.crow.nl/engels/Other_products/Content/Events/Airport_Pavement.html

7th International Conference on the Bearing Capacity of Roads, Railways and Airfields

June 27-29, 2005 in Trondheim, Norway

<http://www.bcr05.no/>

8th International Conference on Concrete Pavements

August 14-18, 2005 in Colorado Springs, Colorado, USA

<http://www.concretepavements.org/Membership/8thConcrete.pdf>

International Conference on Concrete Repair, Rehabilitation, and Retrofitting

November 21-23, 2005 in Cape Town, South Africa

<http://www.civil.uct.ac.za/icrrr/>

If you wish to submit an upcoming conference, meeting, or call for papers for the next ISCP quarterly newsletter (December 2004), please contact us at newsletter@concretepavements.org.

The ISCP Quarterly Newsletter is edited and maintained by Jacob Hiller and Erwin Kohler. Any suggestions or additions to future newsletters are welcomed at newsletter@concretepavements.org.

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