



International Society for Concrete Pavements

What's New at ISCP

Quarterly E-Newsletter
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MENU

What's New at
ISCP

Countdown to
Colorado

Featured
Honorary
Member

Industry Notes

Research News

Featured Thesis
Abstract

Upcoming Events

CORPORATE MEMBERS



Greetings From the President



It is with great pleasure that I am writing this note. We had a successful Board and Open meeting last month during the annual meeting of the Transportation Research Board. The attendance was good (for a Saturday evening meeting) and the discussions were even better (see the highlights of the meeting). All attendees also received the advance version of conference hat. As indicated at the Board meeting, the State of the Society is healthy. We have a stable membership and financially, we are on a "concrete" footing.

The planning for the 8th Conference is in full swing. We received a very good response to our call for papers and our volunteer reviewers are busy reviewing the papers that will shape concrete pavement technology over the next few years. There has been solid commitment for financial support from our co-sponsors and we are expecting a record attendance at the conference. For the 8th conference, we are expecting over 400 attendees from over 50 countries. As currently planned, there will be 16 technical sessions, four workshops that will be repeated, an outdoor test section to demonstrate state of the art instrumentation, a forum on precast paving, a plenary session, and an awards program. Plus, all the attractions of Colorado Springs and the Rocky Mountains nearby. The conference will be the place to be this year for all concrete pavement technologists. So be sure to plan your attendance and register as early as you can.

On a sad note, I have to report that during the Board meeting, the attendees also participated in a moment of silence to pay respect to two of the Society's very good supporters – Mr. Valentin (Val) Riva and Mr. Robert (Bob) Packard, who passed away last year. The Society, in cooperation and initiative from the American Concrete Pavement Association's Concrete Pavement Education Foundation, has announced the Robert G. Packard Award. The award will be presented for the best paper on concrete pavement analysis and design at the international conferences, starting with the 8th conference (see details below). Please visit our [website](http://www.concretepavements.org) to read a tribute to Bob from John Hodgekinson.

Finally, if you are not a member of the Society yet, give us a try!

Please contact me, Dan Zollinger or Mark Snyder if you have any questions related to the Society's activities or have any suggestions.

Shiraz Tayabji, President, ISCP
stayabji@concretepavements.org

Nominating Committee Welcomes Suggestions for ISCP Board and Officers

The ISCP Nominating Committee welcomes suggestions from the ISCP membership for candidates for the following positions:

- President
- Vice-President
- Secretary-Treasurer
- Director (fourteen positions)



The term of office for all of these positions will be for 4 years (from February 1, 2006 through January 31, 2010). All nominees must be members in good standing and should have significant professional experience in concrete pavement technology. Self-nominations are welcomed.

Nominations should include (as a minimum) the nominee's name, title, business address, and an indication of the nominee's willingness to serve. The nominating committee welcomes additional information on all nominees (e.g., the candidate's education, professional experience, affiliations, honors and awards).

Nominations should be sent electronically to the Nominating Committee Chair, Dr. Ernest Barenberg at ejbm@uiuc.edu with a copy to stayabji@ctlggroup.com. Hard copy nominations can be mailed to the following address:

ISCP Nominating Committee
Attn: Dr. Ernest J. Barenberg
1611 Titan Drive
Rantoul, IL 61866 USA

Nominations may also be FAXed to Dr. Barenberg's attention at 217-893-0601.

Nominations must be received by August 15, 2005. This will allow for nominations to be made up through the second day of the 8th International Conference on Concrete Pavements. Contact Dr. Barenberg if you need further information (phone: 217-333-7311).

Call for Nominations of Honorary Members

Honorary Members are individuals that have provided exemplary service to the International Society for Concrete Pavements and/or to the improvement of concrete pavement technology over his/her career. Currently, ISCP has designated 10 members this revered status.

Nominees for honorary membership in the ISCP must be:

- 1) individuals who have maintained ISCP membership for at least 5 years and who have provided exemplary service to the Society and/or at least 25 years of dedication to the improvement of concrete pavement technology; or
- 2) nonmembers who have dedicated at least 35 years of service to the improvement of concrete pavement technology.

Nominations for honorary membership may be submitted to the [ISCP Secretary](#) using the [standard nomination form](#) at any time by any ISCP member in good standing. On June 1 of each year, the ISCP secretary shall prepare copies of all nomination materials received during the previous 12 months and distribute them to the ISCP Board of Directors for consideration at their mid-year meeting. Honorary members will be inducted at the next annual membership meeting of the ISCP or at the next International Conference, whichever occurs first.

For more details on the Honorary Member procedures and details, please go to:

<http://www.concretepavements.org/Membership/honorary.htm>

ISCP Board and Membership Meeting held at TRB Annual Meeting

The International Society for Concrete Pavements held its annual board and membership meeting at the Marriott Wardman Park hotel in Washington, D.C. on the evening of Saturday, January 15, 2005. The meeting was well-attended with nearly 40 participants and active discussions. The main topic of the meeting dealt with the final planning of manuscript submittals, poster presentations and other details for the 8th International Conference on Concrete Pavements scheduled for August 14-18, 2005. Other topics included ISCP liaison member reports, honorary member

nomination procedures, the new ISCP Journal, and the facilitation of international ISCP chapters. Discussion of nominations for new ISCP board members and officers was also prevalent. Previous board and membership meetings were held on the last Thursday of the TRB Annual Meeting. However, the Saturday meeting preceding the start of TRB was well-received and attended so that future ISCP meetings will be planned on these preceding Saturday evenings. A draft copy of the meeting minutes can be found at:

<http://www.concretepavements.org/Meetings/minutes.htm>

International Conference on Best Practices for ULTRATHIN and THIN Whitetoppings

The International Society for 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 were 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.

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 64 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](#).

Student Poster Presentations

The International Society for Concrete Pavements is soliciting abstracts for student poster presentations at the 8th International Conference on Concrete Pavements. Presentations are to be made in an informal environment during breaks from the concurrent technical sessions in an effort to stimulate discussions with interested conference attendees. The poster presentations will be available for viewing throughout the conference although students will only be required to discuss them during two specified break periods. A template as well as example poster presentation will be available to download on the [ISCP website](#) to aid in preparing the poster.

Interested parties should submit:

- 1.) Title and abstract (< 250 words) of poster presentation topic
- 2.) Faculty sponsor and student presenter

to Professor Elin Jensen at jensen@ltu.edu by July 1

Registration Fees for student presenters will be waived!!!

Registration fees for poster presenters at the 8th International Conference on Concrete Pavements will be waived in an effort to facilitate participation among students at the conference. Waivers of registration fees for co-authors and/or faculty sponsors will not be allowed however.

A faculty member interested in sponsoring a student poster presentation should submit a title and abstract of the topic (250 word limit) to Elin Jensen at jensen@ltu.edu by July 1, 2005. Authors will be notified of the status of their topic shortly after the deadline. These submittals will be reviewed by an ISCP committee and will be limited to 10 total poster presentations.

ACPA Concrete Pavement Education Foundation to Present Packard Award

The ACPA Concrete Pavement Education Foundation (CPEF) is announcing that the first Robert G. Packard Award will be presented in conjunction with this year's 8th International Conference on Concrete Pavements.

The award will be presented for the best paper on concrete pavement analysis and design. The award is jointly sponsored by the CPEF and International Society for Concrete Pavements.

The award honors the late Robert (Bob) Packard, P.E., who served as ACPA's Director of Engineering & Design. Packard retired from ACPA in 2000 after more than 45 years of service to the cement and concrete pavement industries.

Packard was widely recognized for his world-class expertise in pavement design. Many of technical works, including those written early in his career, are either still in use or have become the basis for other advanced technical documents. The award will be presented to an undergraduate or graduate student for an outstanding paper on concrete pavement design. A panel that includes ACPA and ISCP staff is currently reviewing scholarship entries.

In addition to the Packard Award, the 8th International Conference on Concrete Pavements will also continue sponsoring two other awards: the Eldon J. Yoder Award for Outstanding Paper of the Conference and the Bengt F. Friberg Award for Outstanding Paper by a Young Author.

For more information, please contact Robb Jolly at rjolly@pavement.com or Shiraz Tayabji at stayabji@ctlgroup.com.

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 Remaining Dates for the 8th International Conference on Concrete Pavements

April 1, 2005	Review completed, authors notified of final disposition of their papers
April 1, 2005	Last day for advance registration (save \$100 on registration fees)
May 1,	Electronic versions of final papers due

2005

Featured Honorary Member

Every issue, the ISCP Quarterly E-Newsletter will profile an honorary member of the International Society for Concrete Pavements. Procedures for nominating and electing an honorary member can be found at:

<http://www.concretepavements.org/Membership/honorary.htm>

Robert (Bob) G. Packard (1927-2004)



Widely recognized pavement design expert and long-time former Portland Cement Association (PCA) employee Robert G. Packard died on December 3, 2004. Bob joined PCA in 1952 and served in a number of positions in the paving and transportation department. When PCA's paving division merged with the American Concrete Pavement Association (ACPA) in 1992, he joined ACPA as Director of Engineering and Design. He retired from ACPA in 1997, but continued to work as a consultant to ACPA on a variety of technical projects, including the concrete industry review of the proposed mechanistic-empirical design procedure for concrete pavements.

Over the years, Bob provided technical support to numerous government agencies, technical organizations, and industry groups. An unassuming person, he was at his best when discussing technical issues related to analysis, design, and performance of concrete pavements. His enthusiasm was equally high whether he was discussing these issues with technical experts or novices. Bob is best known for the widely used concrete pavement thickness design procedures he developed while working at PCA. These include the following:

Packard, R.G. *Thickness Design for Concrete Highway and Street Pavements*. EB109.01, PCA, Skokie, Ill., 1984.

Packard, R.G. *Design of Concrete Airport Pavement*. PCA, Skokie, Ill., 1973.

Packard, R.G. *Slab Thickness Design for Industrial Concrete Floors on Grade*. IS195.01D, PCA, Skokie, Ill., 1976.

Structural Design of Roller-Compacted Concrete for Industrial Pavements. IS233.01, PCA, Skokie, Ill., 1987.

A recipient of many awards and recognitions, Bob was awarded the Hartmann-Hirschman Award by ACPA in 1997, in recognition of his leadership in developing design procedures for concrete airfields, highways and local roads and for expanding the transportation community's knowledge of concrete pavement engineering.

Bob served on the program committee for the 3rd, 4th, 5th, and 6th International Conferences on Concrete Pavements (then organized by Purdue University) and published papers in the proceedings from the 1st to 5th International Conferences on Concrete Pavements. He was also actively involved in technical committees of the Transportation Research Board, the American Concrete Institute, the American Society of Civil Engineers, and the American Society of Testing and Materials.

Industry Notes

The New Bangkok International Airport in Thailand



m2).

The width of the new slabs varies between 16.4, 18 and 19.7 feet (5, 5.5 and 6 m) wide with a consistent depth of 17.7 inches (450mm). Longitudinal joints have bars that are 0.6 inch (16mm) in diameter and 3.3 feet (1 m) in length on 9.8 inch (250 mm) centers. The specifications did not call for continuous steel reinforcement; instead the aprons have transverse joints every 16.4 feet (5 m) with transverse expansion joints every 328 feet (100 m). No keyway is slip-formed into the edge of the slab.

Paving on Suvarnabhumi started in April 2004 and should be finished by May 2005, on track for the September 29, 2005, opening of the airport. All of the concrete paving on the new airport will be slip-formed.



Pictures of the project can be found at

<http://www.bangkokairport.org/demo/en/weekly1en.php>.

Source: http://www.gomaco.com/Resources/worldstories/world32_2/italianthai.html

ACPA Newsletter



The American Concrete Pavement Association publishes every month its newsletter called "Concrete Pavement Progress" which covers the latest information about concrete pavement technologies, as well as transportation industry news.

The issue of January 2005 provided summarized information about pre-paving construction

practices, particularly the following topics:

- The Subgrade Factor: Quality pavements start from the ground up
- The Subbase Factor: Enhancing concrete pavement performance
- Addressing Cracks During Overlay Preparation
- Setting Fixed-Forms Before Placement

In February, ACPA revisits the basics of concrete pavement technologies in a special Concrete Pavements 101 issue, and in March it will feature pavement joints and jointing practices.

Source: <http://www.pavement.com/CPP/2005/CPP-January-05.htm>

Evaluating the Performance of Soil-Cement and Cement-Modified Soil for Pavements: A Laboratory Investigation

A report with this title was announced in the January edition of the Portland Cement Association's e-briefing. The report presents findings on a laboratory testing study to identify new approaches to improving the performance of soil-cement bases and cement-modified soils in pavements. The study was undertaken to determine the optimal cement content for three marginal Texas base materials. Recommended cement contents are based on balancing conflicting criteria from the following four performance related tests: a) UCS, b) Shrinkage, c) Moisture susceptibility, and d) Abrasion resistance.



Subscription to the PCA's pavements e-briefings can be made at <http://www.cement.org/pavements/>. More information on the January edition of the pavements e-briefing can be found at:

http://www.cement.org/pavements/ec/pv_ec_05jan.htm

A copy of the mentioned report can be purchased at the PCA's bookstore at:

<http://www.cement.org/bookstore/profile.asp?itemid=RD120>

NCHRP Recent Publications

The following publications are now available from the TRB's National Cooperative Highway Research Program.

THIN AND ULTRA-THIN WHITETOPPING (NCHRP Synthesis 338)

Thin and Ultra-Thin Whitetopping summarizes available information to document how state departments of transportation and others are currently using thin and ultra-thin whitetopping overlays among various pavement rehabilitation alternatives. The report covers all stages of the proper application of whitetopping overlays, including project selection, design, materials selection, construction, maintenance, and eventual rehabilitation or replacement.

More Info: http://trb.org/news/blurb_detail.asp?id=4630

OPTIMAL TIMING OF PAVEMENT PREVENTIVE MAINTENANCE TREATMENT APPLICATIONS (NCHRP Report 523)

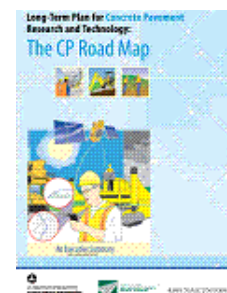
Optimal Timing of Pavement Preventive Maintenance Treatment Applications describes a methodology for determining the optimal timing for the application of preventive maintenance treatments to flexible and rigid pavements. NCHRP Report 523 also presents the methodology in the form of a macro-driven Microsoft Excel Visual Basic Application--designated OPTIME.

More Info: http://trb.org/news/blurb_detail.asp?id=4306

Research News

The Concrete Pavement Road Map

The **U.S. Federal Highway Administration**, in conjunction with the **Center for Portland Cement Concrete Pavement Technology** at **Iowa State University**, has recently released the "Long Term Plan for Concrete Pavement Research and Technology: The CP Road Map". This document outlines the vision for concrete pavement research for the next seven to ten years while organizing the research into twelve specific "tracks" to delineate important issues to be studied on concrete pavements. The twelve main "tracks" and their proposed 7-10 year budgets are listed below:



1. Performance-Based Concrete Pavement Mix Design System

- (USD\$30–68 Million)
2. Performance-Based Design Guide for New and Rehabilitated Concrete Pavements (USD\$41–60 Million)
 3. High-Speed Nondestructive Testing and Intelligent Construction Systems (USD\$20–41 Million)
 4. Optimized Surface Characteristics for Safe, Quiet, and Smooth Concrete Pavements (USD\$25–54 Million)
 5. Concrete Pavement Equipment Automation and Advancements (USD\$26–56 Million)
 6. Innovative Concrete Pavement Joint Design, Materials, and Construction (USD\$10–15 Million)
 7. High-Speed Concrete Pavement Rehabilitation and Construction (USD\$10–20 Million)
 8. Long-Life Concrete Pavements (USD\$11–17 Million)
 9. Concrete Pavement Accelerated and Long-Term Data Collection (USD\$10–16 Million)
 10. Concrete Pavement Performance (USD\$3–4 Million)
 11. Concrete Pavement Business Systems and Economics (USD\$21–31 Million)
 12. Advanced Concrete Pavement Materials (USD\$11–23 Million)
- USD\$218–\$405 Million Total

A draft copy of the CP Road Map Executive Summary can be found on the Iowa State Center for Portland Cement Concrete Pavement Technology website at:

http://www.pcccenter.iastate.edu/publications/pc_road_map_execsumm.pdf

Drafts of Volumes I and II of the CP Road Map should be available on the [PCC Center's website](#) after Monday, February 28.

10th International Symposium on Concrete Roads

Planning is underway for the tenth installment of this prestigious symposium on concrete roads. The most recent conferences were held in Istanbul (2004), Lisbon (1998), and Vienna (1994). The symposium is attended by a large number of engineers and researchers from around the world and will be held in Brussels, Belgium on September 19-22, 2006. Durability, maintenance and security are the key concerns in building roads perfectly met by the concrete solution. As the focus of the symposium is on concrete pavement practices, an active program is planned with many site visits to interesting construction and older well performing concrete pavements in Belgium. Dr. Darter and Mr. Vanikar from the USA are members of the technical committee for the symposium. This event is co-organized by [CEMBUREAU](#), [FEBELCEM](#), and [PIARC](#).

In conjunction with the past five symposiums, CROW has organized an international workshop on concrete pavements 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. Because of different priorities within CROW, Delft University of Technology has offered to organize the next workshop to coincide with the 10th International Symposium on Concrete Pavements.

More information on both the 10th International Symposium on Concrete Roads and the international workshop on concrete pavements will be available in upcoming issues of the ISCP Quarterly E-Newsletter.

Concrete Mixtures with Inclusions to Improve the Sound Absorbing Capacity of PCC Pavements

Professor David Gress of the University of New Hampshire and Professors Jan Olek and Jason Weiss of Purdue University are undertaking this project to develop Portland cement concrete (PCC) pavements with high surface friction and reduced tire/pavement noise generating characteristics. In this way, the work is intended to address the rising numbers of complaints about tire/pavement noise from residents living in areas adjacent to highways, as well the fact that many states are



now mandating corrective actions for noise reduction, especially for urban stretches of highway. The study is based on the premise that pavements containing a reasonable volume of flexible and/or porous inclusions will reduce the resonance and/or reflection of the sound waves while also absorbing a portion of the air volume change generated by the tire interacting with the pavement. This study will develop an alternate and novel system for effective control of pavement noise generation. In addition to solving this important environmental concern, this study will also promote an increased use of recycled materials in the highway environment.

This project builds upon the work conducted at Purdue in the [Institute for Safe, Quiet, and Durable Highways](#) including the use of cellulose or polypropylene fibers, aggregate sizes, and aggregate blends in enhanced porosity concrete to improve noise dampening characteristics in concrete pavements.

Sources: <http://www.rmrc.unh.edu/Research/Rprojects/Project5/Project5.asp>
<http://widget.ecn.purdue.edu/~sqdh/>

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. Gergis William followed by an abstract from Dr. Punya Chupanit.

Effect of Temperature Variations on Premature Cracking of Dowel Jointed Concrete Pavements

Dr. Gergis W. William
 Currently working as a Research Assistant Professor
 Department of Civil & Environmental Engineering
 West Virginia University
 Ph.D. in Civil Engineering at West Virginia University (2003)
 Thesis Advisor: Professor Samir N. Shoukry

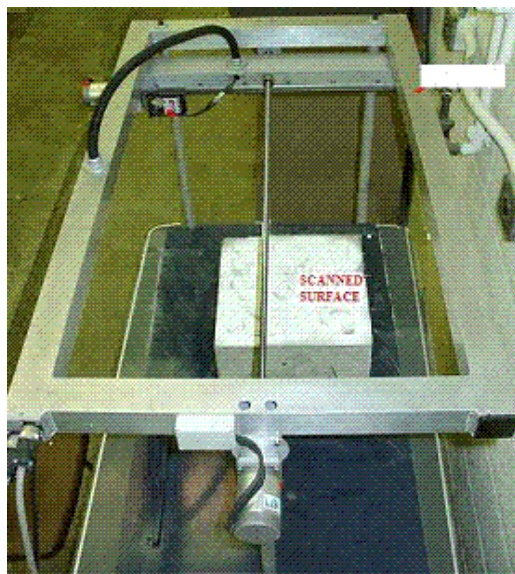
Dowel jointed concrete pavements exhibit premature top-down transverse cracking at mid slab leading to a dramatic decrease in pavement service life. In the past, such cracks were attributed to combined stresses caused by the temperature differential through the slab thickness and heavy vehicle joint loading. This reasoning failed to explain transverse cracking of Palmdale, California slabs (developed before opening the pavement to traffic) as well as the transverse cracks on I-80 in Pennsylvania, USA that appeared after one to two years of construction. In this study nonlinear 3D Finite Element (3DFE) analysis that includes detailed consideration of slab constraints by dowel bars is used to analyze the problem of premature transverse cracking in jointed concrete pavements. The 3DFE model response to ambient temperature variations is validated versus field-measured data obtained from WVU instrumented jointed concrete pavement section along Route 33 near Elkins, West Virginia. Both Field measured data as well as 3DFE modeling results indicate that dowel bar bending due to slab curling causes significant edge restraints to slab contraction or expansion.

Under such constraints, high tensile stresses develop in the concrete slab as its mean temperature decreases. Such stresses are not accounted for in the current design procedures of concrete pavements and shown in this study to be the primary reason for premature mid-slab transverse cracks. The slab length is shown to be a critical parameter that governs the magnitude of thermal stress induced at mid-slab. It is shown in this study that 4.5 m long slabs are most resistant to mid-slab cracking, a conclusion that agrees with field observations and the data records from Long Term Pavement Performance (LTPP) program.

Characterization of Concrete Pavement Joint Surfaces

Dr. Punya Chupanit

Currently working at the Department of Highways in Bangkok, Thailand
Ph.D. in Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign (2005)
Thesis Advisor: Professor Jeff Roesler



In many concrete structures especially pavements, the ability to transfer shear load across crack/joint and the cracking resistance are important. This research was conducted in order to develop a testing method and roughness parameter that could better predict the shear load transfer across crack/joint. In addition, the research intended to improve both the joint shear stiffness and concrete cracking resistance through the selection of proper concrete constituents. In the study, fractured concrete surfaces resulting from various aggregate types, sizes and gradations were manufactured. A 2D laser profiling device was developed to capture the fractured surface profiles. Existing surface parameters, such as surface roughness number, volumetric surface texture ratio and fractal dimension, were

calculated to represent the surface's roughness. The study showed weak to no correlation between the existing roughness parameters and the shear load transfer ability. Therefore, a new surface parameter called Power Spectral Area Parameter was developed and validated in order to better predict the shear load transfer across crack/joint. Wedge splitting test was conducted in order to correlate the concrete's fracture energy with the shear transfer ability. The fracture energy was able to represent both the concrete's fractured surface and shear load transfer properties for several coarse aggregate types and sizes. Strong, large and gap-graded coarse aggregates could improve concrete joint and cracking performances compared with weaker, smaller-sized and dense-graded aggregate mixes.

Upcoming Events

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>**FHWA Best Practices for PCC Pavements Workshop**

March 22, 2005 in Ames, Iowa, USA

http://www.pcccenter.iastate.edu/t2/best_practices.cfm**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>**ACI Spring Convention**

April 17-21, 2005 in New York, New York, USA

<http://www.aci-int.net/convention/spring-convention/front.asp>**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**Seventh International Symposium on Utilization of High-Strength/High Performance Concrete**

June 20-24, 2005 in Washington, DC, USA

http://www.concrete.org/events/conferences/7th_International_Symposium.htm**7th International Conference on the Bearing Capacity of Roads, Railways and Airfields**

June 27-29, 2005 in Trondheim, Norway

<http://www.bcra05.no/>**Workshop on Fracture Mechanics for Concrete Pavements: Theory to Practice**

August 10-12, 2005 in Copper Mountain, Colorado, USA

8th International Conference on Concrete Pavements

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

<http://www.concretepavements.org/Membership/8thConcrete.pdf>**Third International Conference on Construction Materials (ConMat05)**

August 22-24, 2005 in Vancouver, British Columbia, Canada

<http://www.civil.ubc.ca/conmat05/index.html>**Fourth International ACI/CANMET Conference on Quality of Concrete Structures and Recent Advances in Concrete Materials and Testing**

September 6-7, 2005 in Olinda, Pernambuco, Brazil

<http://www.furnas.com.br/hpc2005/>**2nd International Symposium Treatment and Recycling of Materials for Transport Infrastructure (TREMTI)**

October 24-26, 2005 in Paris, France

http://www.tremti.org/english/index_en.html

International Conference on Concrete Repair, Rehabilitation, and Retrofitting

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

<http://www.civil.uct.ac.za/iccrrr/>**10th International Symposium on Concrete Roads**

September 19-22, 2006 in Brussels, Belgium

XXIIIrd World Road Congress

September 17-21, 2007 in Paris, France

<http://www.paris2007.route.equipement.gouv.fr/index.en.html>

If you wish to submit an upcoming conference, meeting, or call for papers for the next ISCP quarterly newsletter (May 2005), please contact us at newsletter@concretepavements.org.

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

ISCP President: Shiraz D. Tayabji, Ph.D., P.E. Construction Technology Laboratories, Inc. 5565 Sterrett Place, Suite 312 Columbia, Maryland, USA 21044 Phone: 410-997-0400 Fax: 410-997-8480 Email: stayabji@concretepavements.org	ISCP Vice President: Dan G. Zollinger, Ph.D, P.E. Texas A&M University CE/TTI Building, Rm 503e College Station, Texas, USA 77843 Phone: 979-845-9918 Fax: 979-845-0278 Email: dzollinger@concretepavements.org	ISCP Secretary and Treasurer: Mark B. Snyder, Ph.D., P.E. 6305 Oyster Bay Court Bridgeville, Pennsylvania, USA 15017 Phone: 412-221-8450 Fax: 412-221-8450 Email: msnyder@concretepavements.org <i>(Contact for membership inquiries)</i>
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