

# **International Society for Concrete Pavements**





CORPORATE MEMBERS



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### **ISCP Board to Meet at LLPC**

The ISCP Board of Directors will meet on Tuesday, October 24 at 8:00 p.m. CDT (0100 GMT on October 25) in the Chicago Peace room on the Mezzanine of the Rosemont Doubletree Hotel near Chicago, Illinois, USA. As usual, the meeting is open to the general membership (although space will be limited). The meeting agenda includes election of members to serve on the International Journal of Pavement Engineering editorial board, approval of a contract for management services for the 9th International Conference on Concrete Pavements, and discussion of potential venues for the conference.

A complete agenda is available on the ISCP website at:

http://www.concretepavements.org/Meetings/agenda.htm

### **ISCP Board Meets in Belgium**



The ISCP Board of Directors held their first ever meeting outside of the US on September 18 when they met in Brussels, Belgium just prior to the 10th International Symposium on Concrete Pavements. The highlight of the meeting was the announcement of newly elected honorary members (see separate article below). Among the topics discussed were techniques for controlling registration costs for the upcoming 9th International Conference on Concrete Pavements, modification of a proposal for conference management services, and the possibility of

producing ISCP communications in multiple languages (see separate article below). Tentative plans were also made for a meeting in South Africa in 2007 in conjunction with a possible technical workshop.

ISCP members in the photo above are (left to right): Jorge Solano (ICCYC, Costa Rica), Juan Pablo Covarrubias (ICH, Chile) and Jean-Pierre Christory (LROP, France). Photo provided by Mike Darter (ARA, USA).

A complete record of the meeting minutes is available on the ISCP website at:

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



#### Sommer, Tayabji named ISCP Honorary Members

Dr. Hermann Sommer and Dr. Shiraz Tayabji were named the latest Honorary Members of ISCP at the September board meeting in Belgium.

Dr. Sommer was Director of the Austrian Cement Research Institute in Vienna from 1978 to 1998. His engineering skills and research work were instrumental in the decision to renew autobahns in concrete, rather than in asphalt, as was originally planned. His methods for recycling concrete pavements have been in use for more than two decades, and he also developed exposed aggregate paving techniques to guarantee low noise and excellent frictional properties in concrete pavements. Dr. Sommer is also a long-standing member of the PIARC Technical Committee on Concrete Roads.

Dr. Tayabji is the current Past President of ISCP and has been a principal investigator on many prominent research and technology transfer projects, including (most recently) the FHWA Concrete Pavement Technology Program (CPTP) Technology Transfer and Marketing Support project, the Long Term Pavement Performance (LTPP) Data Analysis Program Technical Support project, the FAA's Revision of the FAA P-501 Specification for Airport PCC Pavement Construction project and others. His work has encompassed a broad range of concrete pavement-related areas, including various aspects of pavement design, construction, materials testing, field evaluation and rehabilitation. He is recognized around the world as one of the foremost experts on concrete pavement technology.

Drs. Sommer and Tayabji will be formally inducted into honorary membership at the January 2007 board meeting in Washington, D.C.

Honorary membership is the highest level of recognition given by ISCP. Candidates must have a record of at least 25 years of service dedicated to the improvement of concrete pavement technology and must be approved by at least 2/3 of the Board of Directors. A complete list of ISCP Honorary Members is available on the ISCP website at:

http://www.concretepavements.org/honorary\_members.htm

#### Newsletter, Website to go Multi-Lingual!

The ISCP e-newsletter and website will soon be going multi-lingual, thanks to the volunteer efforts of several key members!

At the September board meeting, it was agreed that it would be beneficial to translate the ISCP website and e-newsletters into languages other than English to improve their readability around the world. The following members volunteered to provide services for translation into their native languages:

Juan-Pablo Covarrubias (ICH, Chile) – Spanish Jean-Pierre Christory (LROP, France) – French Halil Ceylan (Iowa State University, USA) – Turkish

It is expected that translated versions of the newsletter and website will be available for the first time in early 2007.

ISCP thanks these volunteers for their commitment to this worthy task and encourages other members to consider similar involvement!

#### Ninth International Conference in California

The Ninth International Conference on Concrete Pavements will be held in California in August 2008. Members of the conference steering committee visited the six most promising hotel venues in the San Francisco/Napa Valley/Monterey area in August 2008, and are currently negotiating room prices and other details.

An announcement about the hotel selected will be made in the next few weeks, and the first call for papers will be sent out as well.



## ISCP Corporate Member Profile: University of California Pavement Research Center

Pavement research has been conducted at the University of California Richmond Field Station since 1954. This research program was formalized as the Pavement Research Center (PRC) in 1994 with major support from the California Department of Transportation (Caltrans). After more than a decade of research and development on a wide range of subjects for rigid and flexible pavements -- including accelerated pavement testing,



materials testing, design analysis, development of construction analysis, life-cycle analysis, field performance and traffic management tools -- the Center has grown and now occupies space at two University of California campuses, Berkeley and Davis. In 2006 the Center was officially renamed the University of California Pavement Research Center (UCPRC).

Dedicated to providing knowledge, the Center's mission is to use innovative theoretical and applied research and sound engineering principles to improve pavement structures, materials, and technologies and serve the people of California. The program's work is achieved through the collaborative efforts of its faculty, staff, and students, and its research partners, which include Caltrans and other leading research institutions both in the U.S. and internationally.



The UCPRC supports these aims with a range of pavement testing methods, including maintaining and operating the two Heavy Vehicle Simulators (HVS).

For more information regarding the University of California Pavement Research Center, contact either Prof. John T. Harvey, Director, at UC Davis via email at

jtharvey@ucdavis.edu or Prof. Carl L. Monismith at UC Berkeley at clm@maxwell.berkeley.edu.

You can also visit the UCPRC Web site at www.its.berkeley.edu/pavementresearch.

### **Industry Notes**

#### **Tommy Beatty Retires**

Tommy Beatty retired from the Federal Highway Administration during August 2006 after 35 years of service. Since 1999, Tommy served as the Director, Office of Pavement Technology. In this position, he directed a multi-million dollar technology program and a staff of FHWA professionals and contract consultants. He established, promoted and implemented such innovative pavement technology as high performance concrete, mechanistic pavement design, recycled materials, quality and performance analysis, improved pavement surface characteristics and identified new and innovative materials and technology that extend the pavement life. He was also a leading proponent of FHWA's Concrete Pavement Technology Program (CPTP) that is aimed at developing smoother, safer, and longer-lasting concrete pavements.

Over the years, Tommy received numerous performance and special recognition awards, including US DOT's Outstanding Performance Award, US DOT Secretary and FHWA Administrator letters of commendation, the Administrator's Award for Superior Achievement, the Secretary of Transportation's "Way To GO" Award, the Federal Highway Administrator's Team Award, and most recently US DOT's Distinguished Service Career Award.



Tommy has been a great supporter and champion of the Society since the Society's early days. His support through FHWA was instrumental in the success of the last two international conferences organized by the Society, and he served as the keynote speaker at these two conferences.

In the picture, past President Shiraz Tayabji presents Tommy with ISCP's Appreciation Plaque at Tommy's retirement reception, held August 24, 2006 at FHWA headquarters in Washington, DC.

The Board and the membership of ISCP wish Tommy the best on his retirement.

#### **Pavement Preservation Initiatives**

The National Center for Pavement Preservation is an entity that coordinates collaborative efforts among government, industry, and academia in the advancement of pavement preservation. Its purpose is to advance and improve pavement preservation practices through education, research and outreach.

There are nearly 3.95 million miles of public roads in the United States, valued at more than \$1.75 trillion US dollars. Pavement preservation initiatives can enhance pavement preservation knowledge through research, and can assist owner agencies in establishing effective pavement preservation programs. These programs extend pavement life and improve motorist safety and satisfaction while saving public tax money.



An interesting video on the Foundation for Pavement Preservation is available at http://www.pavementpreservation.org/video/index.php and links to resources from the Federal Highway Administration are at http://www.pavementpreservation.org/fhwa/.

If you know of concrete pavement preservation initiatives in your geographical area, please let ISCP know and we will post the information in upcoming issues of this newsletter.

### ACPA 43rd Annual Meeting

The ACPA 43rd Annual Meeting will be at Disney's Yacht & Beach Club Resorts near Orlando, Florida. The convention is scheduled from November 29 to December 1, 2006, with affiliate and committee events starting on November 27. The resorts are within short distance of all the fun that the Walt Disney World® Resort can offer. Located on Crescent Lake, the resorts are a quick walk from Epcot® or a water taxi ride from the Disney-MGM Studios.

http://www.pavement.com/Events\_and\_Programs/Events/Annual\_Convention/main.html

### **Research News**

#### Long-Life Pavement Conference



The International Society for Concrete Pavements is co-sponsoring the International Conference on Long-Life Concrete Pavements, which will take place next week (Wednesday to Friday noon) in Chicago, Illinois.

According to the organizers, there will be about 180 to 200 attendees from Australia, Belgium, China, Canada, Columbia, India, Japan, Mexico, the Netherlands, and the US. Over 25 US States and the District of Columbia (Washington, DC) will be represented.

As mentioned in previous issues of this newsletter, the conference is being

organized as an activity under FHWA's Concrete Pavement Technology Program (CPTP). Other conference cosponsors include the American Association of State Highway and Transportation Officials, American Concrete Pavement Association, Cement Association of Canada, Concrete Reinforcing Steel Institute, Illinois Chapter – ACPA, Illinois Department of Transportation, National Center for Concrete Pavement Technology, Portland Cement Association, and the Transportation Research Board.

Detailed information on the conference, including the technical program, is available at

http://www.fhwa.dot.gov/pavement/concrete/2006conf.cfm

For more information contact Shiraz Tayabji at stayabji@ctlgroup.com (phone: 410-997-0400).

#### Call for Papers – IBRACON Workshop in Best Practices

As has been announced in previous ISCP newsletters, the Brazilian Concrete Institute (IBRACON) and ISCP are co-sponsoring an **International Workshop on Best Practices for Concrete Pavements** on October 21-23, 2007, in Recife, Brazil.

It is requested that abstracts for the workshop be submitted as soon as possible, but not later than **October 31, 2006**.

One of the objectives of the workshop is to share best available concrete pavement technologies with the South American audience. To achieve this goal, the conference organizers are asking ISCP members to participate in the Workshop by submitting and presenting practical and theoretical papers dealing with concrete technology, design, construction, evaluation, maintenance and rehabilitation of highway and airport concrete pavements, as well as urban roads and industrial floors. Practical papers do not need to reflect current research and may be based on work completed in recent years.

In addition to being the site of this technical workshop, Recife is known for its beautiful beaches and exceptional diving and topside touring options, so there will be plenty of activities for visitors when the Workshop is not in session. Dr. Jose Balbo (ISCP Director), one of the organizers of this Workshop, invites all ISCP members to participate and he assures us that participants can count on warm Brazilian hospitality and wonderful food at the event.



To find more information on the Workshop or to submit an abstract online, please visit the official website at:

http://ibracon1.locaweb.com.br/eventos/pavement.workshop/informacoes.asp

#### Highway Concrete Technology Pavement Development and Testing Reports

A series of volumes in a research report series sponsored by the Federal Highway Administration on concrete pavement technology are now available online.

- Volume I: Field Evaluation of SHRP C-202 Test Sites (Alkali-Silica Reaction (ASR)) [by Paul Krauss, Jagannath Mallela, and Brian Aho]

- Volume II: Field Evaluation of Strategic Highway Research Program (SHRP) C-203 Test Sites (Freeze-Thaw Resistance) [by Donald J. Janssen]

- Volume III: Field Evaluation of SHRP C-205 Test Sites (High-Performance Concrete) [by Jagannath Mallela, Leslie Titus-Glover, H. Thomas Yu]

- Volume IV: Field Evaluation of Strategic Highway Research Program (SHRP) C-206 Test Sites (Early Opening of Full-Depth Pavement Repairs) [by H. Thomas Yu, Jagannath Mallela, and Michael I. Darter]

- Volume V: Field Evaluation of SHRP C-206 Test Sites (Bridge Deck Overlays) [by Stephen R. Boyd and Paul D. Krauss]

Electronic versions of these reports can be found by typing the report name in the search webpage at TRB, at http://www.trb.org/news/



# **Featured Thesis Abstract**

#### Analytical Modeling of Environmental Stresses in Concrete Slabs

Robert A. Rodden Currently working as Director of Technical Services American Concrete Pavement Association, Skokie, Illinois, USA rrodden@pavement.com

M.S. in Civil and Environmental Engineering University of Illinois at Urbana-Champaign, Illinois, USA (2006) Thesis Advisor: Professor David A. Lange

Temperature and moisture gradients can cause significant tensile strains and resultant stresses in concrete pavement, possibly leading to cracking without the occurrence of mechanical loading. Traditional formulation of environmental stresses in jointed plain concrete pavement (JPCP) assumes linear distribution of thermal and hygrothermal strains through the slab depth, usually underestimating the critical tensile stress. To fully define the relative humidity (RH) and temperature profiles of a concrete pavement, a field-ready measurement system capable of measuring RH and temperature through the depth of a concrete pavement by means of small, permanently embedded digital sensors was designed and constructed at the UIUC. A novel micromechanical approach, based on the Kelvin and Mackenzie equations, was used to calculate hygrothermal stress. When combined, these equations quantify moisture curling, in that the loss of moisture from the cement microstructure creates a negative pressure in the concrete capillary pores which leads to local bulk concrete shrinkage and thus differential shrinkage (moisture curling) through the depth of a slab. The stresses due to linear and nonlinear temperature and moisture gradients, based on laboratory and field measurements, were calculated with consideration of creep relaxation and friction stresses at the slab/base interface. Results of the calculations reveal that, for a typical joint spacing of 20 feet, no cracking is predicted, but if the slab were perfectly restrained (the case before saw cutting), early age cracking is probable. Other results show that properly curing a concrete pavement can offset the development of tensile stresses until the concrete has developed sufficient tensile strength and fracture toughness to resist cracking, thus preventing early age cracking, and that the RH at the surface of a field specimen will approach that of a companion specimen kept in a 50% RH environmental chamber. In addition to the analytical model, an investigation of an anomaly in early age above surface RH and temperature profiles and an investigation on micro- and macro-climates are presented.

### Upcoming Events



International Conference on Long-Life Concrete Pavements Oct. 25-27, 2006 in Chicago, Illinois, USA http://www.fhwa.dot.gov/pavement/concrete/2006conf.cfm

American Concrete Institute Fall Convention November 5-8, 2006 in Denver, Colorado, USA <u>http://www.aci-int.org/Convention/Fall-Convention/Front.asp</u>

**2006 International Conference on Concrete Block Paving, Sustainable Paving for Our Future** November 6-8, 2006 in San Francisco, California, USA <u>http://www.icpiconferences.org/index\_ektid33.asp</u>

#### **Highway Quality Conference**

November 14-15, 2006, New Orleans, Louisiana, USA <a href="http://www.nphq.org/pdf/2006.11">http://www.nphq.org/pdf/2006.11</a>.ConfAgenda.RegForm.pdf

8th International Concrete Conference and Exhibition "Concrete in Hot and Aggressive Environments" November 27-29, 2006 in Manama, Kingdom of Bahrain

http://www.engineer-bh.com/icce/

#### Highway Geophysics Conference

December 4-7, 2006 in St Louis, MO, USA <u>http://www.umr.edu/2006geophysics/</u>

#### Transportation Research Board 86<sup>th</sup> Annual Meeting

January 21-25, 2007 in Washington, DC, USA <a href="http://www.trb.org/meeting/">http://www.trb.org/meeting/</a>

#### National Conference on Pavement Management

May 6-9, 2007, Norfolk, Virginia, USA Contact: Thomas Van at <u>thomas.van@fhwa.dot.gov</u>

**Fifth International Conference on Concrete under Severe Conditions: Environment and Loading** June 4-6, 2007 in Tours, France

http://www.consec07.fr/



Advanced Characterization of Pavement and Soil Engineering Materials June 20-22, 2007 in Athens, Greece http://www.3dfem.org

#### XXIIIrd World Road Congress

September 17-21, 2007 in Paris, France http://www.paris2007-route.fr/index.php?lang=en



International Workshop on Best Practices for Concrete Pavements October 21-23, 2007 in Recife, Pernambuco, Brazil www.ibracon.org.br/pavement.workshop



#### **9th International Conference on Concrete Pavements** Organized by ISCP August 2008 in the San Francisco Bay Area, California, USA http://www.concretepavements.org/



**10th International Conference on Concrete Pavements** Organized by ISCP Tentatively scheduled for August 2012 in Montreal, Quebec, Canada <u>http://www.concretepavements.org/</u>

If you wish to submit an upcoming conference, meeting, or call for papers for the next ISCP e-newsletter, please contact us at <u>newsletter@concretepavements.org</u>.

The ISCP Newsletter is maintained by Editor-in-Chief, Dr. Erwin Kohler, Associate Editor, Jake Hiller, and Assistant Editor, Amanda Bordelon. Suggestions for future e-newsletters are welcomed at <u>newsletter@concretepavements.org</u>.

ISCP President:	ISCP Vice President:	ISCP Secretary and Treasurer:
Dan G. Zollinger, Ph.D, P.E.	Kathleen T. Hall, Ph.D, P.E.	Mark B. Snyder, Ph.D., P.E.
Texas A&M University	1271 Huntington Drive South	6305 Oyster Bay Court
CE/TTI Building, Rm 503e	Mundelein, Illinois, USA 60060	Bridgeville, Pennsylvania, USA 15017
College Station, Texas, USA 77843	Phone: 847-549-8568	Phone: 412-221-8450
Phone: 979-845-9918	Fax: 847-589-4284	Fax: 412-221-0409
Fax: 979-845-0278		Email:
Email:		msnyder@concretepavements.org
dzollinger@concretepavements.org		(Contact for membership
		inquiries)