



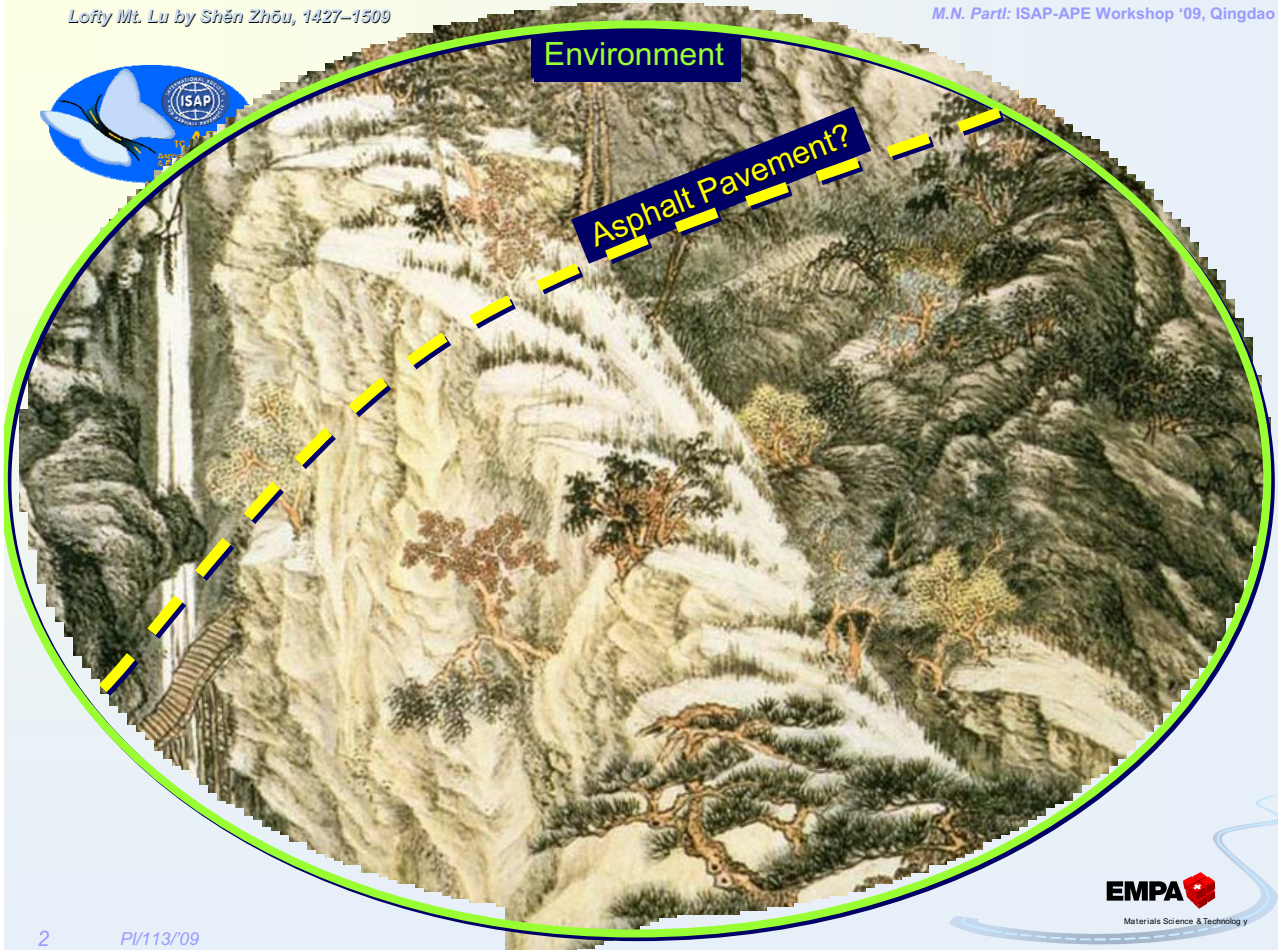
ISAP Technical Committee APE Asphalt Pavement & Environment

Chairman: **Manfred N. Partl** (EMPA & KTH)

Secretary: **Gabriele Tebaldi** (UNIV. OF PARMA)



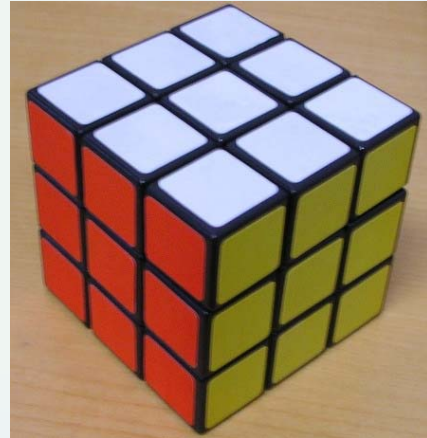
Internat. Workshop ISAP APE, 8th August, Qingdao, Shandong, China





Asphalt Pavements & Environment

**Asphalt pavements
are a solution.....**



.....not a problem!!!!



Goals of ISAP TC APE

- Promote **recycling-asphalt** as sustainable material of high value by considering technical, environmental & economical aspects.
⇒ **Re-use as much as possible at quality levels as high as possible.**
- Promote safe and beneficial **re-use of second mat.** in asphalt
- Find new solutions and new techniques to improve the **environmental compatibility** of asphalt pavements
- Find new solutions and new techniques for asphalt pavements to **improve environment** (e.g. multi-functionality)
- Find new solutions & new technique to understand **mechanisms!!**
- Care for links with other int. groups, e.g. **RILEM TC 206-ATB, WG05 on Recycling**



Research Topics for TC APE...

Material

- Asphalt **production** technologies
- **High-rate** recycling (performance and equipment)
- Perpetual **repeated** recycling
- **New** recycling technologies
- **By-products & secondary** materials (mix design, mech. prop., temp., emulsion type, pav. design, constr. Tech., in-place, in-plant,...)
- **Alternative** binders, vegetal additives

Environment

- **Energy saving** & warm/half-warm & cold recycling (mix design, mech. prop., temp., emulsion type, pav. design, constr. Tech., in-place, in-plant,...)
- **Emissions** (fume, water, CO₂)
- Asphalt pavement for **energy production** (solar, thermal,..)
- **Noise** reduction
- Unconventional **multi-functionality** (e.g. photocatalytic effects, self healing, self de-icing)



...Research Topics for TC APE

Performance

- RAP in relation to **durability** and structural stability
- **Moisture** damage
- **Aging** (mechanism and laboratory techniques)
- **Interaction** structure & performance

Life Cycle Issues

- **Life cycle analysis** modeling
- Life cycle cost analysis of **new** technologies
- Sustainability of **construction & maintenance** of asphalt pavements
- Environmental **restorations** of abandoned alignments

Implementation

- Strategies to **awaken** Road Authorities toward sustainable asphalt pavement
- Development of **common standards** across the world



TC APE Working Groups

as defined in 1st TC Meeting Jan 11th, during TRB 2009

- WG 1** **RAP Recycling** (focus hot, for the time being),
chair: **Chantal de La Roche** (LCPC)
- WG 2** **By-products and secondary materials recycling in asphalt pavement**,
chair: **Gerry Huber** (Heritage Research Group)
- WG 3** **Life cycle analysis**
chair: **John Harvey** (University of California, Davis)
- WG 4** **New technologies and special environmental aspects on asphalt pavements** (solar and thermal energies, noise reduction,)
chair: **Gordon Airey** (University of Nottingham)



APE Workshops 2009

Torino, Italy, July 2009 (joint to Mairepav6)
Recycling on Asphalt Pavement (**WG1**)

<http://www.mairepav6.it/uk/>

Qingdao, China, August 8th, 2009 (joint to 3rd Int Conf. on Asph. Mat)
Material characterization and field validation for predictions of the short- and long-term performance of various types of recycled materials



中國瀝青材料國際學術會議
CHINA INTERNATIONAL ASPHALT MATERIAL CONFERENCE

<http://www.chinabitumen.com>

Fortaleza, Brazil, October 6th, 2009 (joint to Conf. of Brazilian Pav. Ass.)
Cold and warm asphalt mixture design/ characterization and pavement design.
Identification of worldwide best practices



ABPv2009
IV Simpósio Internacional de Avaliação de Pavimentos e Projetos de Reforço
Comemoração dos 50 Anos da ABPv
FORTALEZA - BRASIL

<http://www.abpv.org.br/fortaleza2009>

Nantes, France, 23rd & 24th November 2009
LCA software (**WG3**)



LCPC
Laboratoire Central
des Ponts et Chaussées

Nottingham, UK, December 2009
New technologies in asphalt pavements (**WG4**)

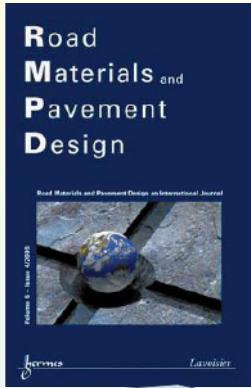


The University of
Nottingham



Actions

Special Issue of Int. J. Road Materials and Pavement Design Asphalt Pavements and Environment Including the best paper of ISAP2008 Zurich 2008



- **An Experimental Apparatus to Evaluate the Leachate Water Quality Produced from and Asphalt Pavement Specimens**
Masoud Kayhanian, Akshay Vichare, Peter Green, Chris Alaimo, Hyun-Min Hwang, James M. Signore, Mark Troxler, David Jones and John Harvey
- **Influence of reduced production temperatures on the adhesive properties of asphalt binders and laboratory performance of fine aggregate-asphalt mixtures**
Kamran L. Vasoo, Amit Bhasin and Dallas N. Little
- **Asphalt Production at Reduced Temperatures using Zeolites and the Impact on Asphalt Performance**
Joëlle De Visscher, Frederik Vervaecke, Ann Vanelstraete, Hilde Soenen, Tine Tanghe and Peter Vanhellemus
- **Acoustic Emission of compacted asphalt as a function of mixture variables and conditioning parameters**
Koenders B., Colange J., Rosso V. and Andersen E.
- **Hot-Recycling of Tar-Containing Asphalt Pavements - Emission Measurements in the Laboratory and in the Field**
Martin Hugener, Lukas Emmenegger and Peter Mattrel
- **Evaluation of Surface-Related Pavement Damage due to Tire Braking**
Hao Wang, Imad L. Al-Qadi



Information & news

<http://www.ape-isap-tc.unipr.it/>

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**ISAP Technical Committee
Asphalt Pavements and Environment**

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WG3 L.C.A.
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Environmental issues and sustainable development are key factors where asphalt pavement technology can play an even more positive active role in the future. Asphalt is ideally suited for recycling and re-use of materials, meeting the challenges of limited material resources. It has potential to reduce global warming through low energy concepts for mix production and placing. Furthermore, it allows meeting specific environmental demands of denser populated agglomerations, such as reduction of traffic noise by introducing new innovative materials and designs as well as reductions of congestion from road works by improving durability and aging resistance. Hence, it is now time to establish a holistic way of approach and introduce this concept in life cycle analysis as well as research and development.

In order to form a coordinate platform for progress in this field and based on the achievements of the Symposium ISAP2008 August 18th to 20th in Zurich (<http://www.empa.ch/isap2008>) a new ISAP Technical Committee TC APE Asphalt Pavement and Environment has been formed.

The goals of this TC APE are

- Promote recycling of asphalt as sustainable material of high value by considering technical, environmental and economical aspects.
Re-use as much as possible at quality levels as high as possible.*
- Promote safe and beneficial re-use of second mat. in asphalt*
- Find new solutions and new techniques to improve the environmental compatibility of asphalt pavement*
- Find new solutions and new techniques for asphalt pavements to improve environment (e.g. multifunctionality)*
- Find new solutions and new technique & understand mechanisms!!*
- Link with other int. groups, e.g. RILEM TC 206-ATB, WG05 Recycling*



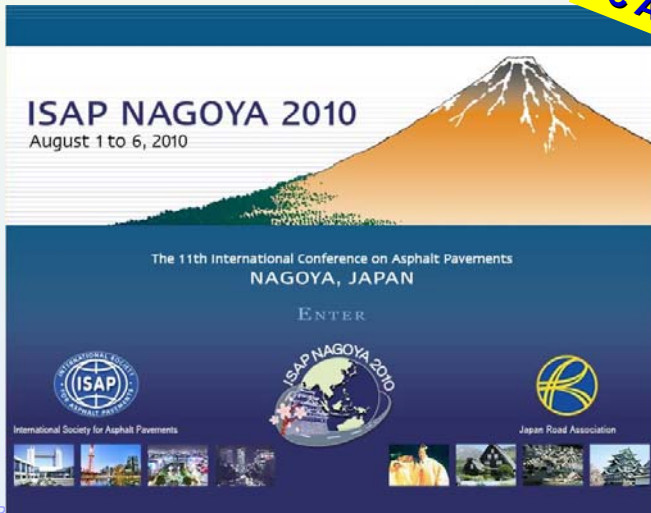


ISAP NAGOYA 2010 August 1st ... 6th 2010

Hosted by
International Society for Asphalt Pavements (ISAP)
Japan Road Association (JRA)
Chair of Local Arrangement Committee: Yoshiaki Yano

<http://isap-nagoya2010.jp/>

TC APE Session !



Lofty Mt. Lu by Shen Zhōu, 1427-1509



Environment

Asphalt Pavement?

Thank You
谢谢

