*fib*-news

CEB•FIP

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# Osaka 2002: Concrete structures in the 21st century

The first *fib* Congress 2002 took place in Osaka's International Convention Centre, Japan, from 14–18 October 2002. Excellently organised by the Japanese *fib* Group, i. e. the Japan Prestressed Concrete Engineering Association (JPCEA) and the Japan Concrete Institute (JCI), it brought together about 1500 registered participants from 55 countries.

A splendid welcome reception on Sunday evening, 13 October, was a first opportunity to meet old friends and make the acquaintance of new ones. During the opening ceremony on Monday morning, the *fib* Freyssinet Medals 2003 were given to John Breen and Gert König (see separate report in this news section), and also Yoshio Ozaka received his Honorary Membership certificate that had been conferred to him by the General Assembly. A two hour plenary Session followed and in the afternoon, technical papers were presented in 10 parallel sessions (including a poster session). Tuesday morning again saw two primary sessions (with invited speakers) and 10 parallel sessions, the afternoon being devoted to several technical tours.

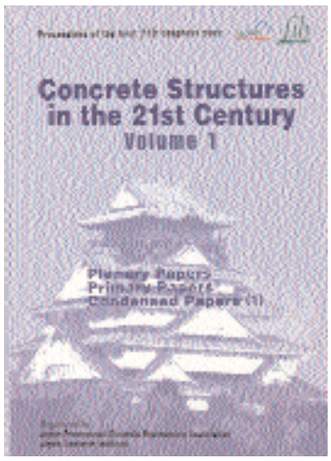
Wednesday morning was started by a plenary session, during which the *fib* 2002 Awards for Outstanding Concrete Structures were attributed (see separate report in the next issue of *fib*-news). This was followed by 11 parallel sessions including the National Reports from 17 nations. As usual, the reports were available to congress participants free of charge, either as beautifully printed volumes (for example, Croatia, Czech Republic, France, JPCEA Japan, Portugal, Switzerland), brochures (Austria, Norway) or less ambitious hand-outs (Denmark), on CD (France, JCI Japan) or as voluminous special issues of national journals (Hungary, Slovak Republic, PCI USA). National groups still in possession of copies and willing to distribute or sell them, are invited to inform the *fib* secretariat so that they can be advertised on the website!

The exhibition was an absolute must! In a very well located area, 72 exhibitors and a large central area for the main organising associations JPCEA and JCI, including a spacious booth offered to the *fib* secretariat, created an ambiance where everybody enjoyed meeting, having a drink or a light lunch and trying to find friends, colleagues, spouses …

Again 11 parallel sessions were held throughout Thursday, including reports from *fib*'s most active commissions. It became evident that several very interesting publications can be expected as *fib* Bulletins in 2003! (They will be presented in *fib*-news in due course). Another plenary session on Friday morning was followed by the closing ceremony, the traditional bell being handed over to Giuseppe Mancini who will have to ring it when opening the 2006 Congress in Naples, Italy!

Shoji Ikeda, as chairman of the Organising Committee, finally summarised the congress, thanking all the speakers and expressing his firm belief that concrete will certainly remain the material of the 21st century to meet the challenging requirements of building the necessary infrastructure for the development of tomorrow's society. 'The progress of structural concrete', said his resumé, 'will contribute to the prosperity of society in its broadest sense'.

The new President Jim Forbes expressed in the name of the *fib* Presidium and all members and participants in this unforgettable event, hearty thanks to the organising groups, the staff involved and the numerous sponsors who contributed to this great success. It speaks for itself if we cite from one of the letters that the organisers received after the congress: ' … During my 20 years experience as a participant in major international concrete symposia and congresses, I have never attended a scientific / social better event than the one you organised …'




The proceedings of the congress are available in three variations:
Proceedings 1: two volumes (format 18 x 25 cm), 1574 pp, with 13 plenary and primary papers in full length and 668 two-page abstracts plus a CD with all full length papers;
Proceedings 2: Only a CD-Rom with all accepted papers in full length;
Proceedings 3: Printed hard copy of all papers in full length (10 volumes).
All are available from the Japan Prestressed Concrete Engineering Association (email uchiyama@jpcea.or.jp).

# Steering Committee and Council

On Saturday 12 October and Sunday

morning, 13 October, *fib*'s Steering Committee and Council met and on Sunday afternoon the General Assembly was held. The preparations for the new Model Code 2005 were of course a major topic on the Steering Committee's agenda. President Joost Walraven presented in detail a summary paper 'Considerations for a new Model Code' and Peter Marti introduced the suggested list of contents. It was agreed that a Model Code Steering group, comprising 6–8 experts and chaired by Joost Walraven and Peter Marti, will co-ordinate the work of Commissions and of specially created working parties on specific topics. These should consist of 6–8 members each, incorporating younger engineers and experienced older ones, and draft so-called core documents which will then be given to the appropriate Commission for review and assessment. National Delegates were asked to raise interest in their countries of experts willing to join these working parties. Progress will be reported in one of the future issues of *fib*-news.

Due to retirement of several Commission Chairmen some changes in commission chairmanship for the period 2002–2006 became necessary. Council appointed the following for this period:

- o Commission 1:Structures

Chair: Jean-François Klein (Switzerland), Deputy: Gordon Clark (United Kingdom)

- o Commission 2: Safety and performance concepts

Chair: Luc Taerwe (Belgium), Deputy: not yet appointed

- o Commission 3: Environmental aspects of design and construction

Chair: Koji Sakai (Japan), Deputy: Michael Schmidt (Germany)

- o Commission 4: Modelling of structural behaviour and design

Chair: Peter Marti (Switzerland), Deputy: Frank Vecchio (Canada)

- o Commission 5: Structural service life aspects

Chair: Steen Rostam (Denmark), Deputy: Paulo Helene (Brasil)

- o Commission 6: Prefabrication

Chair: Gunnar Rise (Sweden), Deputy: Marco Menegotto (Italy)

- o Commission 7: Seismic design

Chair: Paolo Pinto (Italy), Deputy: Robert Park (New Zealand)

- o Commission 8: Concrete

Chair: Harald Müller (Germany), Deputy: not yet appointed

- o Commission 9: Reinforcing and prestressing materials and systems

Chair: Hans-Rudolf Ganz (Switzerland), Deputy: Theodore Neff (USA)

- o Commission 10: Construction

Chair: Adrianus van der Horst (The Netherlands), Deputy: Philippe Jacquet (France)

All chairmen are asked to revise and complete where necessary the terms of reference for, and the membership in their commissions so that updated programmes can soon be published in the *fib* Directory 2003. This also includes the updating of working programmes and membership in Task Groups. All Commission Chairmen are members of the Steering Committee and are expected to attend its meetings. According to the statutes, ten further members of the Steering Committee were elected by the General Assembly (see report below).

The Council noted the preparations made for the 2004 *fib* Symposium in Avignon entitled 'Concrete structures: the challenge of creativity'. A preliminary announcement and call for papers was distributed and also mailed to all readers of Structural Concrete or the *fib*-news. It can also be downloaded in English as pdf file from the website of the French organising group AFGC:

http://www.afgc.asso.fr/v3/home.html
(click on 'manifestations' and then 'Symposium de la fib 2004—Avignon')

# General Assembly

The meeting on Sunday afternoon, 13 October, *fib*'s 3rd General Assembly was very well attended: 31 nations out of a total of 39 *fib* member countries were validly represented by 64 of the 70 votes admitted. By secret ballot with 63 or 64 votes out of 64, the following were elected:

President 2002–2004: Jim Forbes (Australia)
Deputy-President 2002–2004: Giuseppe Mancini (Italy)

Elected Presidium members 2002–2006:
Michael Fardis (Greece)
Hans-Rudolf Ganz (Switzerland)
Shoji Ikeda (Japan)
Hans-Ulrich Litzner (Germany)

Elected Steering Committee members 2002–2006:
György Balázs (Hungary)
Mikael Braestrup (Denmark)
Eduardo Carvalho (Portugal)
Hugo Corres (Spain)
Brian Cox (South Africa)
Thomas d'Arcy (USA)
Steinar Helland (Norway)
Tippur Subba Rao (India)
Xuekang Tao (China)
Jun Yamazaki (Japan)

In application of the statutes the new Steering Committee selected two Deputy-chairmen for its representation on the Presidium from the ten elected members listed above :

György Balázs (Hungary)
Tippur Subba Rao (India)

In due course, the President Jim Forbes will recommend up to two co-opted members who will be elected by the Presidium for

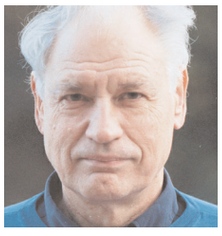
the duration of his time of office.

The outgoing President Joost Walraven then reported on developments during the past two years. He concluded by saying that *fib* had had a successful period and might be confident to master the challenges of the future. He also emphasised the need to strengthen the secretariat in the near future, to involve more voluntary work from the officers and delegates in the various bodies and to intensify the international co-operation with respect to the challenge of drafting a new Model Code. He also informed the General Assembly on the arrangements made so far for the drafting of the next Model Code. Jim Forbes, as Deputy-President for the last two years and now President-elect, then gave a report on the developments in the work of the Steering Committee.

Joost Walraven then submitted to the General Assembly the following proposal that had been fully supported by Council: to confer, in view of their contribution to the work of CEB, FIP and *fib*, the title of

Honorary Member on Renaud Favre (Switzerland)

'…in recognition of his significant personal contribution to the work of *fib* and the preceding CEB (Comité Euro-International du Béton) for the last 23 years, his valuable participation as a member of the former CEB Commission on Serviceability, elected member of the CEB Administrative Council for 14 years, Vice-President of CEB for 7 years and elected member of the first fib Presidium 1998–2002'



Ralejs Tepfers (Sweden)

'…in recognition of his significant personal contribution to the work of *fib* and the preceding CEB (Comité Euro-International du Béton) for the last 27 years, his valuable participation as a member of several commissions, member of the CEB Advisory Committee for many years, and his services as convenor of various very successful Task Groups during this time'

Yoshio Ozaka (Japan)

'…in recognition of his significant personal contribution to the work of *fib* and the preceding CEB (Comité Euro-International du Béton) for over 35 years, his valuable participation as a member of many former CEB commissions related to safety and seismic design, member of the CEB Advisory Committee for 11 years, Head of the Japanese National Group in CEB and *fib* for 15 years and strong promoter of the Japanese contributions at all levels in both, CEB and *fib*.'

He presented in brief the professional career of these personalities, highlighting their particular engagement in the association's work (for more details see the next issue of *fib*-news). The General Assembly unanimously approved this suggestion.

On proposition of Jim Forbes, the General Assembly then also unanimously conferred the title Honorary President onto the retiring President Joost Walraven.

# Freyssinet Medallists 2002

During the opening ceremony of the Congress, President Joost Walraven presented the awardees with the two Freyssinet Medals 2002:

'The Freyssinet Medal is *fib*'s highest distinction. It is given only once in four years at the special occasion of an *fib* Congress, 'for outstanding technical contributions to the field of structural concrete.' A maximum of two medals may be awarded at a congress and that is what the *fib* Council decided this time.

The first recipient of the 2002 Freyssinet medal is Prof. Gert König. Born 1934 in Leipzig, Germany, he studied structural engineering at the University of Darmstadt, where he received his MSc degree in 1960 and his PhD in 1966 with a thesis on the development of an improved calculation method for the stability of high rise buildings.

After completing his PhD, he worked for 11 years as a consulting engineer and became in 1975 professor of concrete structures at the University of Darmstadt whilst maintaining the leadership of a large consulting office in Frankfurt.

Considering the work of Prof. König, one is amazed by the extraordinary width of his achievements. His research covers the whole range from the properties of the material concrete to the design and analysis of innovative concrete structures.

In the first period of his career he published a substantial number of papers on the design and analysis of high rise buildings. His contribution 'High rise buildings in structural concrete' in the German concrete calendar ('Betonkalender') is still used by many designers in daily practice. Subsequently he became interested in the influence of the concrete properties on the behaviour of structures. He significantly contributed to the development of transparent calculation models for the control of the crack width in reinforced and prestressed concrete structures. The models he developed are simultaneously easy to

apply and consistent, and valid for a wide range of applications. Furthermore, he developed improved design rules for ensuring sufficient robustness of structures. Structures should be tolerant in his view; that means that they should maintain their structural integrity even in unusual loading cases, for example after a suddenly occurring pier settlement. His knowledge and expertise was of great value in the preparation of the Eurocode for concrete bridges.

In the early nineties, he was among the first to start research on high-performance concrete. His and his colleagues' work in Darmstadt has been recognised worldwide. Interested in studying the properties of the material, like the brittleness of high strength concrete and the addition of various combinations of fibres to generate ductility, he also developed design rules for shear, crack width control, rotation capacity, minimum reinforcement etc., thus significantly contributing to the extension of the scope of national (German) and international building codes up to concrete strengths of 100 MPa, like in the latest version of the Eurocode for concrete structures.

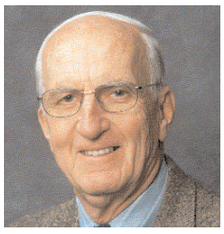
Another of his interests was the search for innovative structures. For example, he developed a new reinforcing system where prestressed concrete bars were used as passive reinforcement. The prestressed bars were produced first and then transported to the site where they were installed as passive reinforcement. By using modern prestressing steel and high strength concrete for the bars, he showed that this system could be economic for bridges with intermediate spans, that are too long to be simply reinforced and too short to be economically prestressed.

One of the most striking features of his character has always been his interest in the education and stimulation of young people. Travelling with them all over the world to show the best examples of structural engineering and creative architecture, he also led numerous PhD students to their doctorates by giving them challenging subjects and enabling them to present and discuss their work at international workshops and conferences.

Prof. Gerd König gets the Freyssinet Medal '… in recognition of his numerous important contributions to the development of new types of concrete and their application to innovative structures. It further acknowledges the continuous impetus he has given to the development of consistent and clear design models and procedures. Finally, it recognises the great stimulation and motivation passed on to many students, young researchers and designers helping develop them into highly qualified engineers'.

We would have loved to see him here in Osaka and to hand over to him this prestigious Medal. Very unfortunately, however, Prof. König had a severe accident in May of this year, and is still recovering in hospital. After this conference I will visit him there and it will be an honour to personally give him the award. I am sure that you support my wish that we hope to see him back at the earliest occasion and in the best possible condition!

Today's second recipient of the Freyssinet Medal is Prof. John E. Breen who received his Bachelor Degree from Marquette University in 1953. After serving as an officer in the Civil Engineering Corps of the US Navy for 4 years, he continued his education at the University of Missouri. He did his PhD study at the University of Texas under the supervision of the famous Professor Phil Ferguson. After getting his degree in 1962 he joined this university as a professor.



In the beginning of his academic career he played a major role in the development of precast segmental bridges. In order to overcome initial scepticism and concern of building authorities and some experts, especially with regard to the role of the epoxy joints, the university team under his leadership designed a three-span box girder segmental bridge for balanced cantilever erection on the JFK Causeway in Corpus Christi, Texas. This bridge had main spans of 30–60–30 m. In the laboratory a highly detailed one-sixth scale model was built and tested using all of the proposed construction procedures. The excellent behaviour observed during testing convinced the opponents, and the bridge was built.

Another contribution to bridge design concerned externally prestressing of precast segmental bridges. The concept of the multiple small key shear joint was introduced, and comprehensive research was carried out into the behaviour of the deviators. The load-bearing capacity and the behaviour in fretting fatigue were investigated in the laboratory, and later on by monitoring in actual structures. Prof. Breen implemented his knowledge into practice by developing sound design recommendations and introducing them into the AASHTO Segmental Bridge Specifications.

Already in this period he emphasised the significance of proper detailing, such as in post-tensioned anchorage zones. He was always a strong solicitor for the use of transparent models such as for example, strut and tie models, for the formulation of efficient and adequate reinforcement details. Furthermore he was one of the first to strongly push the 'Structural Concrete Approach', where the structural designer first looks for a logical structural system to transmit the loads smoothly to the foundations and minimise the restraint forces before starting with member proportioning. Moreover, John Breen strongly insisted on considering prestressing to be nothing other than the introduction of a set of loads, so that the codes for reinforced, prestressed, partially prestressed and externally prestressed concrete could be simplified to one logical set of design recommendations.

He has always been interested in the design of structures with tolerant behaviour under all types of conditions. Amongst other subjects, the behaviour of

After the award ceremony during the opening session of the first *fib* Congress 2002 in Osaka, Japan (from left to right: Honorary member Yoshio Ozaka, Mariko Ozaka, Marian Breen, Freyssinet medallist John E. Breen, President Joost Walraven, Rose Walraven).

stay cables under windy/rainy conditions drew his attention. Oscillations of stay cables under such conditions are a world-wide problem. The researchers of Austin University applied hundreds of acoustic sensors on stay cables in order to trace hidden damage.

Although he is best known for his publications in the field of bridges, Prof. Breen has written excellent papers in other fields as well. The first time that I personally came across his name was when I read his paper 'Developing Structural Integrity in Bearing Wall Buildings', published in the PCI Journal in 1980. In this paper of nearly 30 pages he treated the subject of progressive collapse in buildings and its prevention. For a designer of buildings, which I was myself in those days, the paper was an absolute eye-opener. It treated a large number of collapses and showed which mistakes were made and how these could have been avoided. The paper was written in a very clear and convincing style and I still regard it as one of the best papers ever written on this subject.

I am very pleased to be in the position of handing over the Freyssinet Medal to Professor John Breen. The award is given '… in recognition of his major contributions to the development of clear conceptual thinking in the design of concrete structures. It acknowledges also his many important contributions to the development of transparent design codes for both structural concrete buildings and bridges. It finally recognises his numerous stimulating lectures on the design and application of structural concrete given world-wide.

John, it is not your first award—far from it. However, I hope that you accept this Medal, the highest that *fib* can give, as a sign of great appreciation for a brilliant career.'

# New bulletins

Three of the *fib* Bulletins for the subscription year 2002 were so far presented: number 16—Design examples for the 1996 FIP recommendations 'Practical design of structural concrete', number 17—Management, maintenance and strengthening of concrete structures, and number 18—Recycling of offshore concrete structures. In the meantime, the series continues with number 19— Precast concrete in mixed construction, and number 20—Grouting of tendons in prestressed concrete. They were mailed to all corporate and individual subscribing members who also received a copy of the brochure '*fib* 2002 Awards for Outstanding Concrete Structures', issued at the occasion of the award ceremony during the recent Osaka congress (this will be presented in more detail in the March issue of *fib*-news). A brief description of the two bulletins is given below. Non-

members may order these or any other *fib* publication, (also those published by CEB and FIP before 1998), by simply following the instructions given on *fib*'s website http://fib.epfl.ch/publications/.

## Precast concrete in mixed construction (*fib* state-of-art report)

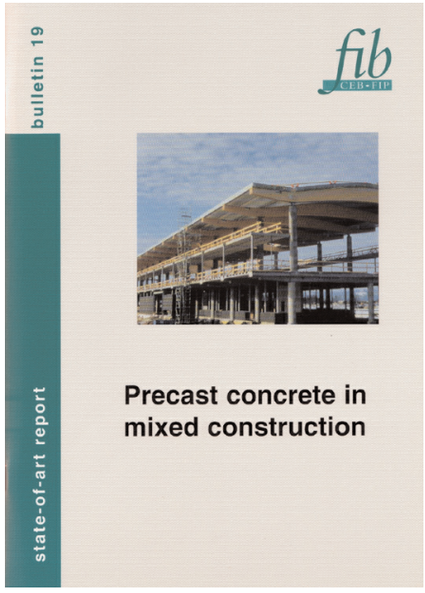
Mixed construction is today being used in more than 50 per cent of new multi-storey buildings in the western world. This was once the traditional domain of cast *in situ* concrete and structural steelwork. A similar story exists with single-storey industrial buildings, once the domain of long span prestressed concrete. Precast concrete is part of nearly every new building in most areas of the world—the contribution varies from around 10 per cent (where cast *in situ* dominates) to 90 per cent (where precast dominates).

The report shows how precast concrete may be mixed in combination with other structural materials (as cast *in situ* concrete, reinforced and post-tensioned; structural steelwork; timber and glue-laminated timber; masonry in brickwork and blockwork; glass and glazing) to maximise overall building performance. The term 'mixed precast construction' is used to describe these combinations.

The intention is not to discuss design calculations (that is for a future '*fib* Guide to Good Practice'). It is meant as a 'State-of-the-Art' publication showing photographs, sketches and details of precast concrete with other materials. There are no design equations, although some technical information on how to combine the materials, e.g. bearings, connections, tolerances, thermal and shrinkage effects, etc., is included if appropriate.

The document focuses on the use of mixed construction in multi-storey buildings, offices, housing, grandstands, parking garages, and industrial warehouses, etc. It focuses on precast concrete as the main construction material and looks at the manner in which other materials can be integrated with precast concrete.

·*fib* Bulletin 19, Format 204x289mm, (approx DIN A4), 68 pages, ISBN 2-88394-059-2
·Non-member price 80 CHF, surface mail included, for airmail add 20% extra charge




## Grouting of tendons in prestressed concrete (*fib* guide to good practice)

Prestressed concrete is a very efficient form of construction; it takes advantage of the strength of concrete in compression. Developed mainly over the second part of the 20th century, it has proven to be reliable and durable.

However, in the 1990s some cause for concern was discovered, first in the UK and subsequently in many other countries around the world. It appeared that the grout, an important means of protection of the steel against corrosion for internally ducted tendons, was in some cases inadequate.

Major investigations followed, including physical intrusive examination of ducts, mainly in bridges, and re-writing of procedures, processes and specifications, and in 1998 FIP launched a Task Group to review their advice note 'Guidelines for Grouting' which had first been published in 1990. The merger of FIP and CEB brought this under the auspices of *fib*.

Structural deficiencies have only been found in a small number of bridges and in most of these cases the cause was clearly identifiable as either design detailing, workmanship or materials. In the UK, Concrete Society report TR47 'Durable Post-tensioned Concrete Bridges' had been published in 1996, which was the culmination of four years of investigative research and contained major new specifications and procedures aimed at improving the quality of grouting. In the USA, the Post Tensioning Institute published their guide 'Specification for Grouting of Post-Tensioned Structures'in 2001, which also represented a major step forward in materials and testing requirements. The American Segmental Bridge Institute has set up a Committee to re-examine their guidelines, as have many other National Bodies worldwide. In Europe, France has issued a 'Fascicule No. 65A' covering requirements for grouting and a European Technical Approval Guideline (ETAG) has been published for approval of post-tensioning systems which covers several aspects of grout and grouting.

In November 2001 an international workshop was held in Ghent, Belgium on 'Durability of Post-Tensioning Tendons' at which international experience was exchanged (published as *fib* Bulletin number 15). The theme was clearly apparent; those bridge owners that have looked, found some problems with a few of their post-tensioned bridges. In most cases steps are being taken to repair existing bridges where considered necessary and to improve future construction by reviewing national specifications.

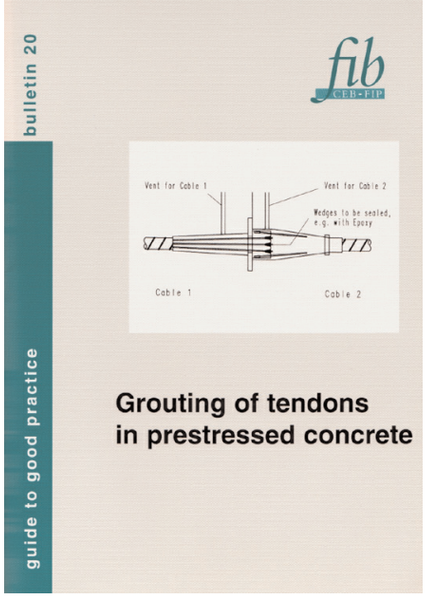
Emphasis is being put on a multi-layer protection strategy whereby protection against corrosion is provided by waterproofing, dense impermeable concrete, sealed ducts and good quality grout. Design detailing and rain water

management are seen as important aspects.

It was now timely for *fib* to publish state-of-the-art guidelines to assist in developing and improving the quality of a major line of defence against corrosion—the cement grout. This document represents a consensus view of current practitioners of what is a rapidly developing awareness of some of the shortcomings of previous practice and suggests improvements. This document is a major update of the previous FIP Guidelines and may be taken as a future basis for updating EN 445-447.

New areas include understanding of the deleterious effects of an unstable grout, bleeding and how to avoid it, the importance of training and proper procedures, mix design and testing/trials and some new test procedures. It is now understood and generally accepted that the properties of common grout made from cement and water can be very variable and sometimes unpredictable and such grout is not recommended.

·*fib* Bulletin 20, Format 204x289mm, (approx DIN A4), 52 pages, ISBN 2-88394-060-6. Non-member price: 60 CHF, surface mail included, for airmail add 20% extra charge




## Phd Symposium Munich

Fourth *fib* International PhD Symposium in Civil Engineering 2002, September 19–21, Munich, Germany

Basically following the same line as the first three PhD Symposia which took place in Budapest in 1996 and 1998 and in Vienna in 2000, the fourth *fib* International PhD Symposium in Civil Engineering was held on September, 19–21 at the Technical University of Munich. The local organising committee was formed by Peter Schiessl (Chairman), Konrad Zilch, Norbert Gebekken and Manfred Keuser.

The idea of these symposia is to create a forum in which PhD students from various countries can present and discuss the results of their ongoing research. The aim of such an exchange is to give PhD students the possibility to establish personal scientific relationships through international communication. The procedures for PhD studies at various universities can be compared and colleagues working on similar topics can be met. Furthermore it gives a very informative survey on present research activities in various countries.

After the welcoming lecture by Professor Peter Schiessl on Munich's history and location, Professor György Balász who initiated and organised the first PhD Symposia in 1996 and 1998 gave an address about the concept of this event and its early beginnings.

The technical program included 139 contributions by PhD students from 52 universities in 28 countries. To ensure a high scientific level all contributions had been reviewed and preselected in advance by a scientific committee consisting of 37 internationally recognised scientists. The scope of subjects was not only limited to concrete and concrete structures. Adequate attention was given to other fields of research such as masonry, steel structures, timber, bridges, connections/ joints, durability/ corrosion, inspection and repair, building physics, seismic behaviour and numerical simulations. The main ideas and results of the PhD studies were presented and discussed within the time target of twenty minutes each. In addition to the PhD students, a substantial number of their supervisors actively attended the event and took part in the discussions. Since all sessions were led and evaluated by one member of the scientific committee the young researchers could profit from their long experience in scientific work.

Every session with up to four contributions was followed by a 40 minute coffee break. This offered a well appreciated possibility for lively discussions between PhD colleagues and members of the scientific committee in order to brush up one's knowledge, especially concerning adjacent and complementary fields of research.

A big challenge for the scientific committee has been the analysis of all evaluation sheets. The high level of all contributions and the large number of fields of research made it difficult to find the best PhD work and equally the best presentation. Finally, an annual *fib* membership and a prize money of 500 EURO was awarded to four PhD students for their contributions:

Bernd Domer from the Swiss Federal Institute of Technology (EPFL Lausanne, Switzerland), reporting on 'Performance enhancement of active structures during service lives'.

Stephan Görtz from the RWTH Aachen, Germany, reporting on 'Shear-cracking behaviour of prestressed and nonprestressed beams made of normal- and high-performance concrete'.

Kristian Krabbenhoft from the Technical University of Denmark, reporting on 'A non-equilibrium model for moisture transfer in wood'; and Juliane Möller from the University of Karlsruhe (Germany), presenting her research on 'Ductility of prestressed segmental girders with

4th *fib* International PhD Symposium Munich 2002 From left to right: Ms Petra Rucker (Organising Committee), Konrad Bergmeister (Chairman of the 3rd PhD Symposium Vienna 2000), Peter Schiessl (Chairman of this year's 4th PhD Symposium)

unbonded tendons'.

Another twenty students were honoured for their research work by rerceiving the proceedings of the third International PhD Symposium held in Vienna two years ago. All prizes were presented by Professor Peter Schiessl in the award show on Saturday morning, during which the 'challenge cup' of these PhD Symposia in the form of a special stone engraved by all previous organising universities was handed over to Professors Johan Blaauwendraad and Joost Walraven who invited for the fifth *fib* International PhD Symposium in Delft, The Netherlands, 2004.

Of course, an extensive social program completed the technical sessions: on Thursday evening the University of German Federal Armed Forces in Munich invited all participants to a 'Bavarian Evening' providing deep insights into Bavarian cuisine and Bavarian folk music. As most of the PhD students had accepted the offer to sleep at the student dormitory of this university throughout the symposium, the students and even some members of the scientific committee conducted conversations well into the night.

On Friday evening a large number of participants availed themselves of the opportunity of a sightseeing tour (optional by foot or by bus). Thereby a short ramble through Munich's Old Town delivered an insight into Munich's townscape and history.

The peak event of the social program, however, was the visit to Munich's well-known 'Oktoberfest' on Saturday afternoon. Peter Schiessl and the organisation team surprised the PhD students by appearing in traditional costumes: men wore leather trousers, knee-length socks, traditional shirts and traditional shoes, the 'Haferlschuhe', ladies wore dirndl dresses. Particularly impressive was the procession of the Bavarian publicans on sumptuously decorated carriages drawn by at least four horses. Although many participants undertook their home journey on Saturday evening, students and members of the scientific committee enjoyed a hilarious afternoon of music and entertainment —a memorable conclusion to the PhD Symposium in Munich 2002!

Recapitulatory the fourth PhD. Symposium in Civil Engineering was resoundingly succesful concerning the main idea of this event: scientific knowledge was exchanged and PhD students were supported in forming an international network of young researchers.

The symposium's proceedings are available at a price of 45 EURO from the Institute for Materials and Structures, Technische Universität München, Baumbachstr. 7, D 81245 Munich, Germany (Fax +49 89 289 27 064; E-mail dstrehlein@bsi.bv.tum.de). Selected pictures are published under http://www.phd.bv.tum.de.

Doris Strehlein, Petra Rucker, Karsten Beckhaus, Peter Schiessl

# Congress and symposia

The calender lists *fib* congresses and symposia (also co-sponsored events and, if space permits, events supported by the *fib* or organized by one of its National Groups). It reflects the state of information available to the Secretariat at the time of printing and the information given may be subject to change.

| Date and location | Event | Main organizer | Contact |
|---|---|---|---|
| 18–20 February 2003, Ulm, Germany | 47th Ulmer Beton-und Fertigteil-Tage | FBF Betondienst | FBF Baden-Wüettemberg e. V., Reutlinger Strasse 16, D-70597, Stuttgart, Germany<br>Tel.: +49 711 976 620; Fax: +49 711 976 6250<br>Email: FBF_BW@betonservice.de<br>Web: htpp://www.betonservice.de |
| **16–9 May 2003 Athens, Greece** | ***fib* Symposium: Concrete Structures in Seismic Regions** | **Technical Chamber of Greece**<br>Supported by IABSE | **Office for Internal Relations, Technical Chamber of Greece, 4 Karagiori Servias Street, GR-105 62 Athens, Greece<br>Tel.: (+30.10) 323 5779; Fax: 322 2832<br>Email: fib2003@strulab.civil.upatras.gr; intrel@central.tee.gr<br>Web: http://www.fib2003.gr** |
| **26–28 April 2004 Avignon, France** | ***fib* Symposium: Concrete Structures: The Challenge of Creativity** | **AFGC (*fib* group France)** | **Secretariat Scientific Committee: Mme Nathalie Chartier, c/o Freyssinet, 1 bis, rue du Petit Clamart, F-78140, VELIZY, France<br>Tel.: +33 1 4601 8530; Fax +33 1 4601 8681<br>Email: nchartier@freyssinet.com<br>Web: http://www.afgc.asso.fr** |
| **If you intend to submit a paper for the 2004 symposium, please contact the secretariat of the Scientific Committee indicated above immediately!** | | | |
| 19–22 October 2003, Orlando Florida, US | PCI Annual Convention in conjunction with the 3rd PCI/FHWA International Symposium on High Performace Concrete | PCI | PCI—Precast/Prestressed Concrete Institute, 209 W Jackson Boulevard, Suite 500, Chicago, IL 60606, USA<br>Tel.: +1 312 786 0300; Fax: +1 312 786 0353<br>Email: info@pci.org<br>Web: http://www.pci.org |

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