COM9 "Dissemination of knowledge"

fib Technical Council
Madrid, 15 June 2016

György L. Balázs
Chair

Commission 9 – Dissemination of knowledge

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	Muttoni	EPFL Switzerland
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	Taerwe	Ghent University Belgium
	Toscas	PCI Prestressed/Precast Concrete Institute USA
	Zerbino	LEMIT Argentina
	Zhang	Southeast University China
	Zhao	Tongji University China

Terms of references of *fib* COM9

Motivation and background (in brief)

Up to date technical information is needed to construct the best concrete structures. The newest information is necessary on material properties, design methods as well as construction methods, respectively. By recognizing its importance, the ***fib*** decided to create a separate commission on the dissemination of knowledge.

***fib* COM9**, Dissemination of knowledge, develops, co-ordinates and uses appropriate means to disseminate the knowledge available within *fib* and the results of the work by its commissions and task groups. The various means of dissemination are detailed below. All of the *fib* commissions and task groups contribute, either directly or indirectly, through their activities.

***fib* courses**

fib courses deal with advanced knowledge on structural concrete in general or on specific topics.

- Codes and guidelines for sustainable development (Italy 2012)
- Concrete structures in fire (South Africa 2012)
- Design and construction of concrete bridges (Turkey 2012)
- Design of pre-stressed concrete bridges (Croatia 2008; Israel 2009);
- Durability of concrete structures (Croatia 2010; Cyprus 2011, Portugal 2014).
- Earthquake resistance of precast concrete structures (Greece, 2011)
- ***fib*** Model Code 2010 for Concrete Structures (Italy 2012, Argentina 2013, Austria 2013, India 2014, Brazil 2014)
- Fibres in concrete structures (Italy 2011)
- Modern concrete technology (Australia 2011)
- Prefabrication for low-cost and seismic resistant housing (India 2003 and 2004)
- Prestressed concrete bridges –materials, technologies and design (Croatia 2008)
- Retrofitting with externally bonded FRPs, with emphasis on seismic applications (Greece 2003, Turkey 2005, Mexico 2006)
- Service life design of concrete structures (India 2011)
- Strut-and-tie models (India 2003)

***fib* Summer schools**

***fib* Textbook: Structural Concrete - Advanced Design of Concrete Structures**

A bulletin is planned to provide design examples and practical applications of MC2010 rules. This will be significant work will to further develop MC2010 applications.

PhD Symposia

Publications

Publication policy is one of the key issues within ***fib***.

Electronic dissemination

COM9 intends to take advantage of the most current technology for the dissemination of knowledge. This will be done in close cooperation with the *fib* headquarters in Lausanne.

VIDEO-s of MC2010 Mumbay 2014 on *fib* Homepage

fib Model Code 2010 – Introduction
Joost Walraven of the Delft University of Technology (TU Delft), Netherlands

fib Model Code 2010 – Design of concrete structures with advanced methods
Hugo Corres Peiretti of FHECOR Ingenieros Consultores, Spain

fib Model Code 2010 – Shear and punching shear provisions
Aurelio Muttoni of the Ecole polytechnique de Lausanne (EPFL), Switzerland, and Viktor Sigrist of the Hamburg University of Technology, Germany

fib Model Code 2010 – Design rules for FRC applications
Marco di Prisco of the Politecnico di Milano, Italy

fib Model Code 2010 – Verification of behaviour under special loads
Joost Walraven of the Delft University of Technology (TU Delft), Netherlands

fib Model Code 2010 – Verification of serviceability
György L. Balázs of the Budapest University of Technology and Economics, Hungary

fib Model Code 2010 – Principles of structural design
Giuseppe Mancini of the Politecnico di Torino, Italy

fib Model Code 2010 – Concrete properties: material models and practical applications
Harald S. Müller, Karlsruhe Institute of Technology (KIT), Germany

fib Model Code 2010 – Performance and displacement-based seismic design or evaluation of concrete structures
Michael Fardis of the University of Patras, Greece

fib Model Code 2010 – Reliability-based nonlinear analysis
Jan Cervenka and Vladimir Cervenka of Cervenka Consulting, Czeck Republic

e-learning course: 27-30 Jan 2015, Ghent Univ.

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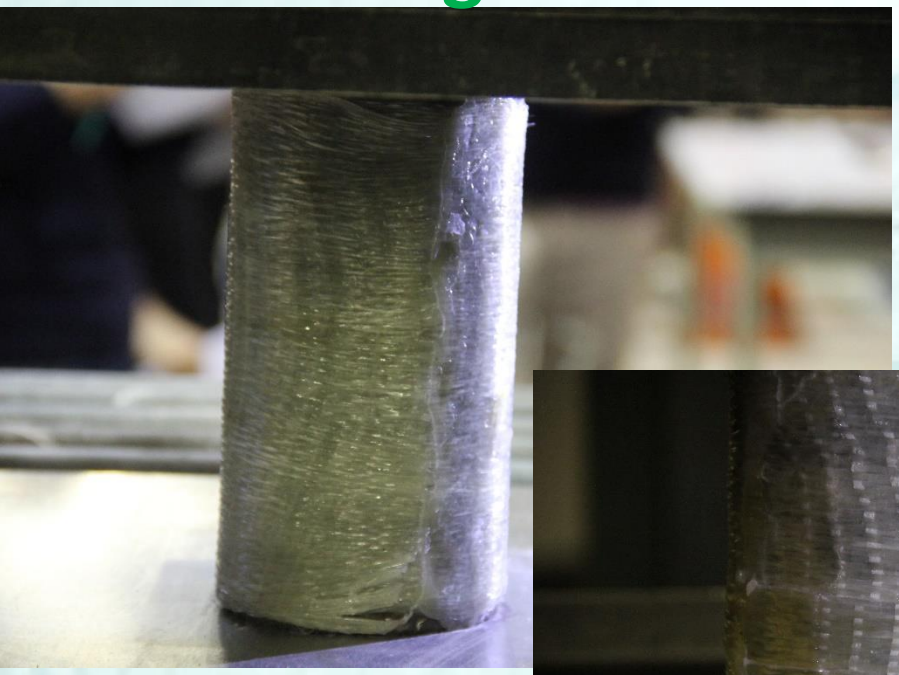
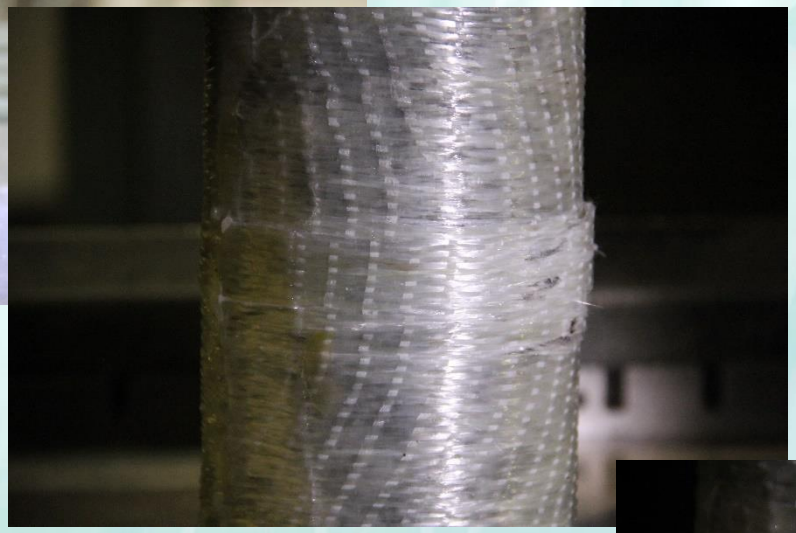
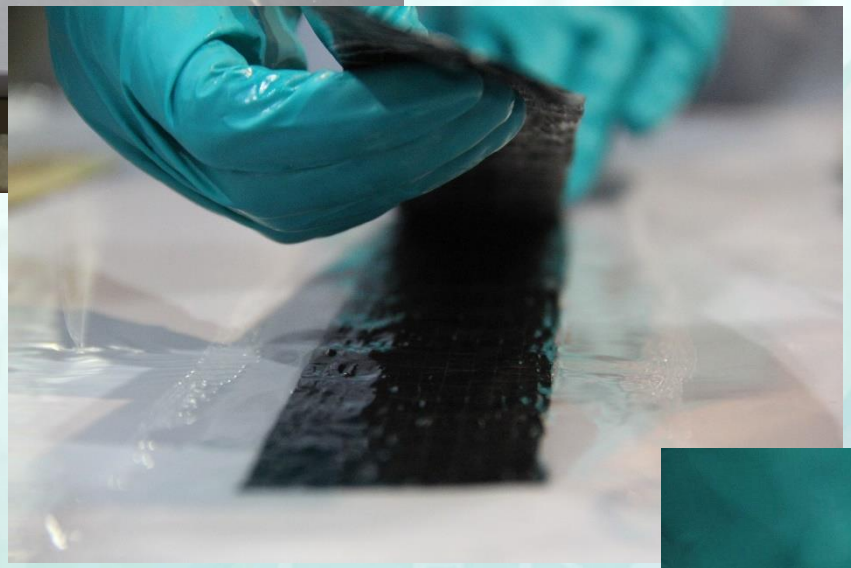
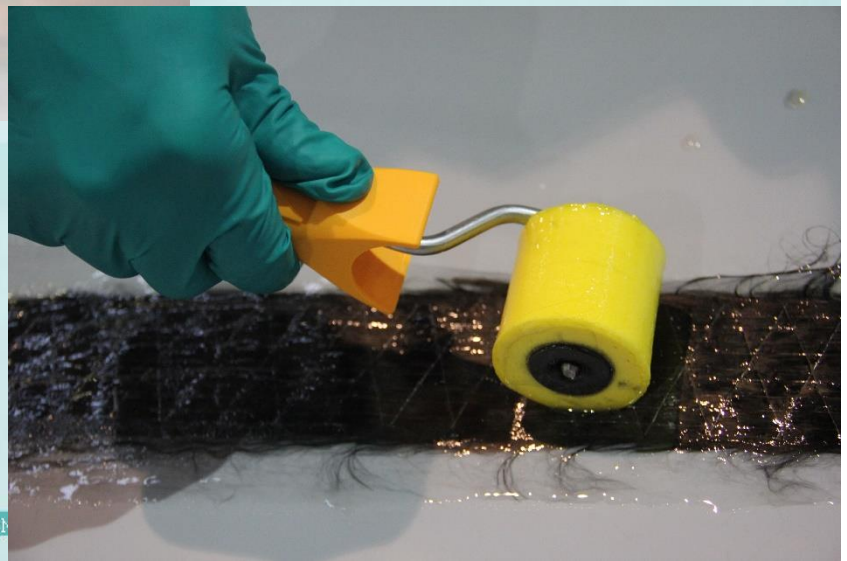




e-learning course: 27-30 Jan 2015, Ghent Univ.





e-learning course: 25-29 Jan 2016, Ghent Univ.

Why this course?

Offering high strength, light weight and excellent durability characteristics, in combination with ease of application, FRP (Fibre Reinforced Polymer) reinforcement has become a technique of increased popularity in the construction sector. Since the early 1990's commercial applications of strengthening with bonded FRP reinforcement and of FRP reinforced and prestressed concrete structures have been growing numerously. With a share of 17%, composites in construction have become one of the main sectors in the global composites market. Furthermore, FRP as non-traditional reinforcement has reached a broad status of recognition in the previous years and is entering mainstream design codes, such as fib Model Code 2010.

This course gives an excellent exposure on the design and application of FRP reinforcement in new construction and rehabilitation and is taught by international experts in this field. The aim of the course is to train participants with specific knowledge and skills, allowing them to consider, design and apply FRP reinforcement in a systematic way.

www.frpcourse.eu

Scientific coordination

Prof. dr. ir. Stijn MATTHYS
Ghent University
stijn.matthys@ugent.be

Organized by

UNIVERSITEIT GENT · fib · enduire · TU1207

With the support of

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FRP
TRAINING COURSE

Reinforcing and strengthening of structures with FRP reinforcement

Theory / Design / Lab experience

STRENGTHENING
REINFORCING STRUCTURES
TRAINING COURSE

25-29 January 2016 — Ghent University

SECOND EDITION

e-learning course: 25-29 Jan 2016, Ghent Univ.

What to expect?

In this 5 days training course you will obtain theoretical and hands-on knowledge on the use of FRP reinforcement in construction. FRPs are non-metallic reinforcements with excellent engineering properties, to reinforce and prestress concrete elements or to strengthen existing structures. Their use as a sustainable and cost efficient solution has increased considerably over the years. The course is complemented with an introductory module on experimental mechanics.

Who should attend?

This training course is intended for all industry and research professionals involved in FRP reinforcement for reinforcing concrete structures or for strengthening of existing structures.

- Engineers and designers in the public or private sector, involved in the design of concrete structures and/or the design of repair and strengthening (including seismic rehabilitation) of existing structures.
- Engineers at construction companies, material suppliers or research institutes with special interest into sustainable construction.
- Technical advisors of construction companies and control organisms.
- Professionals interested in the field of developing and applying advanced composites, and more specifically FRP reinforcement, in the construction sector.
- PhD students, scientists and teachers seeking specialist knowledge on the use and design of FRP reinforcement.

Teachers

Prof. Valter **Carvelli**, Politecnico di Milano, Italy

Dr. Christoph **Czaderski**, Empa, Switzerland

Prof. György **Balazs**, Budapest University of Technology and Economics, Hungary

Prof. Joaquim **Barros**, University of Minho, Portugal

Dr. Maurizio **Guadagnini**, University of Sheffield, United Kingdom

Prof. Renata **Kotynia**, University of Lodz, Poland

Prof. Stijn **Matthys**, Ghent University, Belgium

Prof. Lluis **Torres**, University of Girona, Spain

Prof. Thanasis **Triantafillou**, University of Patras, Greece

Practical information

Venue

The training school is taking place at the Magnel Laboratory for Concrete Research of Ghent University, Belgium.

Certificate of continued education

Participants attending the complete course and successfully completing the assignment, will receive an UGent certificate.

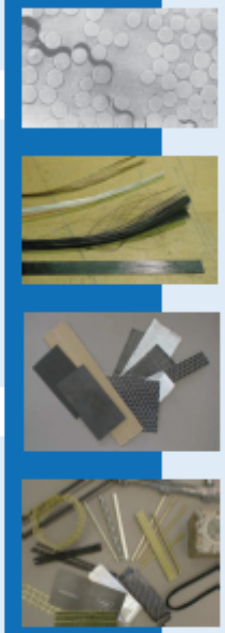
Course material

Hand-outs of the presentations during the course will be provided both in paper and digital format, along with other useful information. A dedicated web-based training course learning environment is available for the course participants.

E-learning

This training course will be video captured for e-learning purpose. Course participants will have full access to the e-learning modules.

MORE DETAILED INFORMATION & REGISTRATION: www.frpcourse.eu



Programme

Module 0 – Training on Experimental Mechanics

As a preceding module to the course, training on experimental mechanics is offered for research engineers. During this module, several deformation measurement techniques will be introduced (e.g., strain gauge and digital image correlation). Furthermore, participants will have the opportunity to obtain hands-on experience with FRP materials. Laboratory work will be organized handling FRP and adhesive materials.

Teachers: Christoph Czaderski, Valter Carvelli and Maurizio Guadagnini

Date: 25 January 2016

Module 1 – Training on FRP materials and FRP for Prestressed Concrete

In this module FRP reinforcement will be discussed in terms of constituent materials, micromechanical behaviour, systems and industrial applications. During this module focus will also be given to use of FRP for prestressed concrete structures, both in new construction or in the framework of repair and strengthening.

Teachers: Stijn Matthys, György Balazs, Christoph Czaderski and Renata Kotynia

Date: 26 January 2016

Module 2 – Training on strengthening with FRP

Most applications of FRP reinforcement deal with the repair and strengthening of existing structures, eg. by means of externally bonded reinforcement. This is covered in this module in terms of flexural and shear strengthening and its design aspects, as well as confinement and seismic rehabilitation. As part of the teaching, cases or design examples will be given.

Teachers: Stijn Matthys, Joaquim Barros and Thanasis Triantafillou

Date: 27 January 2016

Module 3 – Training on internal FRP reinforcement

This module focusses on the use and design of FRP reinforcement for reinforced concrete structures. Amongst other, the serviceability and ultimate limit state of concrete is discussed. Similar to module 2, cases or design example will be given as part of the teaching.

Teachers: Lluis Torres, Maurizio Guadagnini and Valter Carvelli

Date: 28 January 2016

Module 4 – Hands-on training on FRP behaviour

Participants will be able to verify their predictions by means of experimental tests. In addition a site visit will be organized.

Teachers: Stijn Matthys and Brenda Debbaut

Date: 29 January 2016

Registration

Registration is mandatory through the course website. The registration fee includes hand-outs, lunches, coffee breaks, e-learning platform access and evening activities.

The number of participants is limited to 40.

Registration fee	Before 25 December	After 25 December
Participants	600 EUR	720 EUR
PhD students	420 EUR	540 EUR

If you are only interested in Module 0, please contact the course secretariat

Endure/COST TU1207 members and UGent PhD students obtain a discount of 75 EUR on the above prices. Financial support will be available for a limited number of participants through COST TU1207. Endure researchers attending the course are supported by their project budget. Financial support may also be offered by the doctoral school of your university. For further info on this and on cancellation conditions please see the course website.

MORE DETAILED INFORMATION & REGISTRATION: www.frpcourse.eu

fib-courses

fib COM9

"DISSEMINATION OF KNOWLEDGE"

Nr.	Date & Place	Title of the course	Coordinator (Chairman) of fib expert group	Chairman of local org. Com.	Lectures (presentations) given by	Nr. of part	Written doc	Related event	Registr. fee
23.	13-14 Febr 2014 Mumbai, India	fib Model Code for Concrete Structures 2010	Prof György L. Balázs	Subashchandra Joglekar, Chander Alimchandani	Subashchandra Joglekar Gordon Clark Prof. György L. Balázs Prof. Joost Walraven Prof. Hugo Corres Prof. Aurelio Muttoni Prof. Viktor Sigrist Prof. Marco di Prisco Prof. Giuseppe Mancini Prof. Harald S. Müller Prof. Michael N. Fardis Jan Cervenka	40	The whole presentations were filmed	fib Congress 2014 Mumbai	-
24.	8 May 2014, Univ of Minho, Guimares, Portugal	fib commission 5 Seminar on durability of concrete structures	Brett Pielstick	José C Matos	Brett H Pielstick Steinar Helland Jose Campos e Matos Christoph Gehlen Carola Edvardsen Carmen Andrade Manuela Salta	65	fib Bulls 33 and 44	fib Com 5 Durability meeting	-
25.	27-28 Nov. 2014, Sao Paolo, Brasil	fib Model Code for Concrete Structures 2010 – Selected Topics	Fernando Stucchi	Fernando Stucchi	Prof. Fernando Stucchi Prof. Harald S. Müller Prof. Hugo Corres Prof. Joost Walraven Prof. Giuseppe Mancini Prof. Aurelio Muttoni	60	MC2010	-	243 EUR (early) 303 EUR (normal)

fib-courses

Nr.	Date & Place	Title of the course	Coordinator (Chairman) of fib expert group	Chairman of local org. Com.	Lectures (presentations) given by	Nr. of part	Written doc	Related event	Registr. fee
26.	18 March 2016, Milano, Italy	Edifici alti e industrializzazione	Prof. Marco di Prisco	Prof. Marco di Prisco	Prof. Franco Mola Prof. Hugo Corres Peiretti	50	fib Bulls 73 Tall Buildings	-	80 EUR 50 EUR young eng
27.	14-15 July 2016, Sao Paolo, Brasil	Design of Concrete Structures by strut-and-tie modelling	Prof. Aurelio Muttoni	Prof. Fernando Stucchi	Prof. Aurelio Muttoni Dr. Miquiel Fernández Ruiz				
28.	?2016-2017 Vienna, Austria	Practical relevant exapmles according to the fib Model Code 2010		Dr. Suzanne Gmainer	Prof. Aurelio Muttoni Prof. Norbert Randl Prof. György L. Balazs Prof. Joost Walraven Prof. Harald Müller Prof. Marco di Prisco Prof. Hugo Corres Prof. Jan Cervenka Prof. Johann Kollegger/ Dr. Suzanne Gmainer				
29.	?2016-2017 New Zealand	?FRP		Assoc. Prof. Alesandro Palermo					

fib-Summer schools

SUMMER SCHOOL

Politecnico di Milano – Lecco CAMPUS

Department of Civil and Environmental Engineering

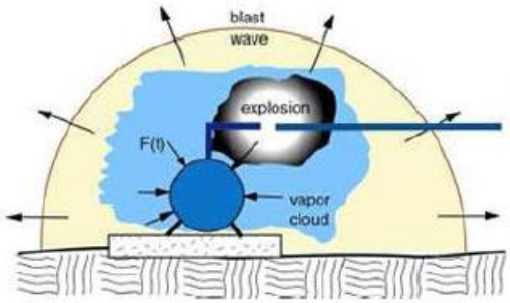
PhD course in Structural, Seismic and Geotechnical Engineering

Scheduled time: July 3st-8th 2015

Performance, protection & strengthening of structures under extreme loading

Coordinator: M. di Prisco

Lecturers: **G. Mancini, E. Buzaud, J. A.N. Dancygier, M. di Prisco**



fib-Summer schools

Location: Politecnico di Milano – Lecco Campus

fib-Summer schools

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"DISSEMINATION OF KNOWLEDGE"

Nr.	Date & Place	Title of the course	Coordinator (Chairman) of fib expert group	Chairman of local org. Com.	Lectures (presentations) given by	Nr. of part	Written doc	Related event	Registr. fee
1.	4-9 July 2014 Politecnico di Milano, Dept. of Civil and Environmental Engineering, Campus Leonardo, Lecco, Italy	Fibre Reinforced Concrete (FRC): Material Characterization and Structure Design	Prof. Marco di Prisco	Prof. Marco di Prisco	Prof. Nemkumar Banthia Prof. Marco di Prisco Prof. Horst Falkner Prof. Joost Walraven	40	Prepared by the lecturers	Social programme	400€
2.	3-8 July 2015 Politecnico di Milano, Dept. of Civil and Environmental Engineering, Campus Leonardo, Lecco, Italy	Performance, Protection & Strengthening of Structures under extreme loading	Prof. Marco di Prisco	Dr. Matteo Colombo	Prof. Giuseppe Mancini, Dr. Eric Buzaud, Assoc. Prof. J.Avraham N. Dancygier, Prof. Marco di Prisco	18	Prepared by the lecturers	Social programme	400€
3.	1-6 July 2016 Politecnico di Milano, Dept. of Civil and Environmental Engineering, Campus Leonardo, Lecco,	Textile reinforced concrete design material and structural behaviour	Prof. Marco di Prisco	Prof. Roberto Paolucci	Prof. Viktor Mechtcherine Prof. Joaquim Barros Prof. Glanmarco De Felloe Prof. Marco di Prisco				

fib PhD Symposia (1996 -)

Year	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014
City	Budapest	Budapest	Vienna	Munich	Delft	Zürich	Stuttgart	Copenhagen	Karlsruhe	Quebec
Country	Hungary	Hungary	Austria	Germany	The Nether-lands	Switzerland	Germany	Denmark	Germany	Canada
University	Budapest Univ. of Techn. & Economics	Budapest Univ. of Techn. & Economics	Universität für Bodenkultur	Technische Universität München	Delft University of Technology	ETH Zurich	Universität Stuttgart	Technical University of Denmark (DTU)	Karlsruher Institut für Technologie (KIT)	Université Laval
Name(s) of main organizers	György L. Balázs	György L. Balázs	Konrad Bergmeister	Peter Schiessl (committee chair)	Johan Blaauwendraad	Peter Marti	Rolf Eligehausen	Mette Geiker	Harald Müller	Josée Bastien
				Konrad Zilch	Joost Walraven		Christoph Gehlen	Henrik Stang	Michael Haist	

fib PhD Symposium 2014 Quebec City, Canada

Proceedings

Winners

fib PhD Symposium 2014 Quebec City, Canada

Balázs, G.L.: *fib* Technical Council meeting, COM9 Report, 16 June 2016

fib PhD Symposium 2014 Quebec City, Canada

10th *fib* International PhD Symposium

Université Laval, 21 au 24 juillet 2014

La 10e édition du colloque *fib* international de PhD prendra place à l'Université Laval, du **21 au 24 juillet 2014**. La Fédération Internationale du Béton, *fib*, est l'une des principales associations internationales qui diffuse des connaissances sur le béton et les structures en béton.

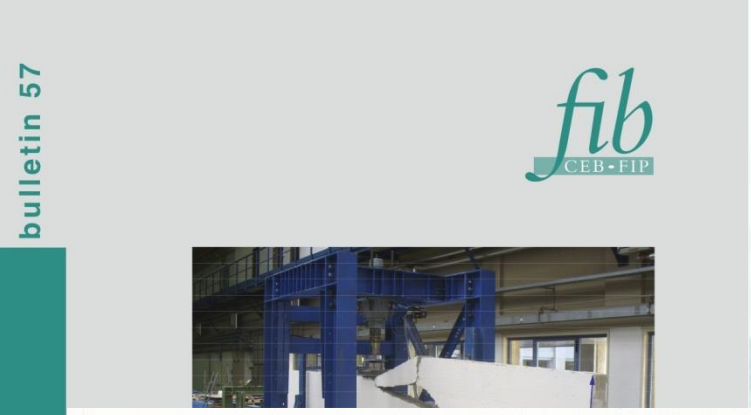
Cet événement est propice pour des échanges d'informations entre les doctorants et la communauté de recherche internationale. Ainsi, les chercheurs et les représentants de l'industrie du monde du béton seront présents pour partager leurs expériences en recherche.

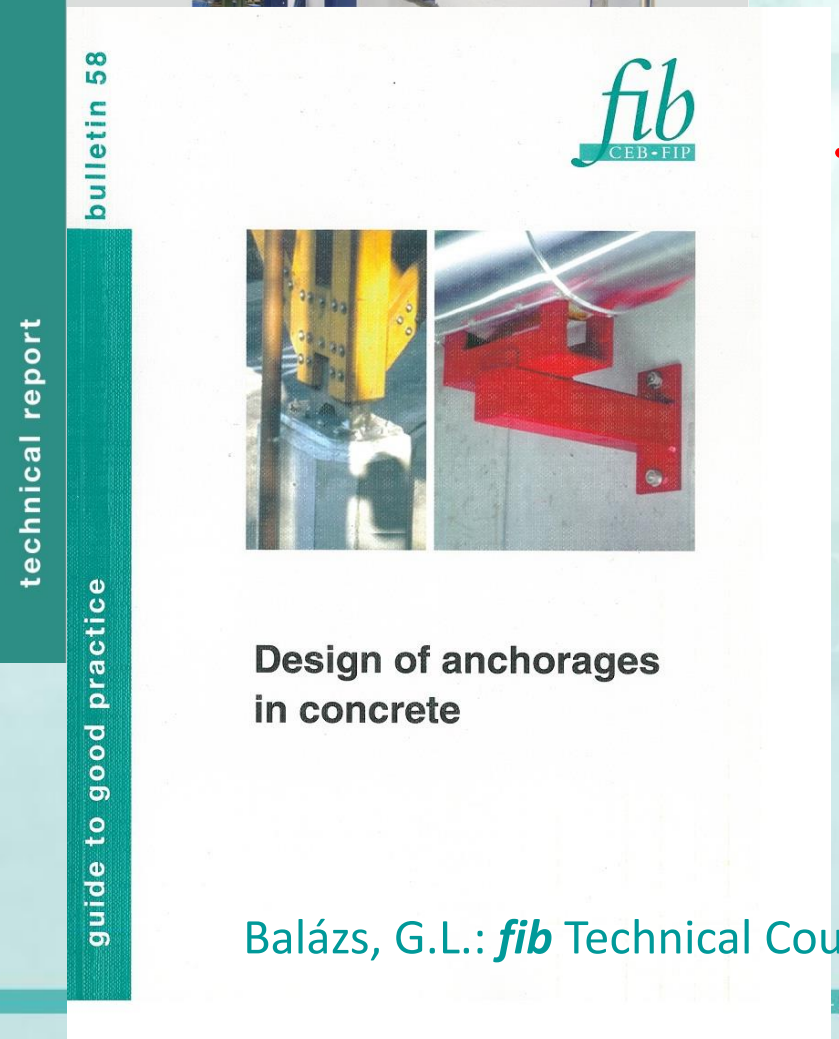
Au mois de ***juillet 2012****, Professeur* ***Harald S. Müller*** *a transmis l'effigie du* ***fib*** *PhD Symposium à la Professeure* ***Josée Bastien****. Pour les deux prochaines années, ce symbole sera exposé au Secrétariat du Département de Génie Civil de l'Université Laval.*

fib PhD Symposium 2014 Quebec City, Canada

fib PhD Symposium 2014 Quebec City, Canada

Invitation to fib PhD Symposium 2016 Tokyo





- Results of work of Coms &Task Groups is published in ***fib*** bulletins
  - **Technical reports**
  - **State-of-art reports**
  - **Manuals or Guides**
  - **Recommendations**
  - **Model Codes**

fib bulletins

bulletins ➡ **We have to improve the acceptance of our bulletins**

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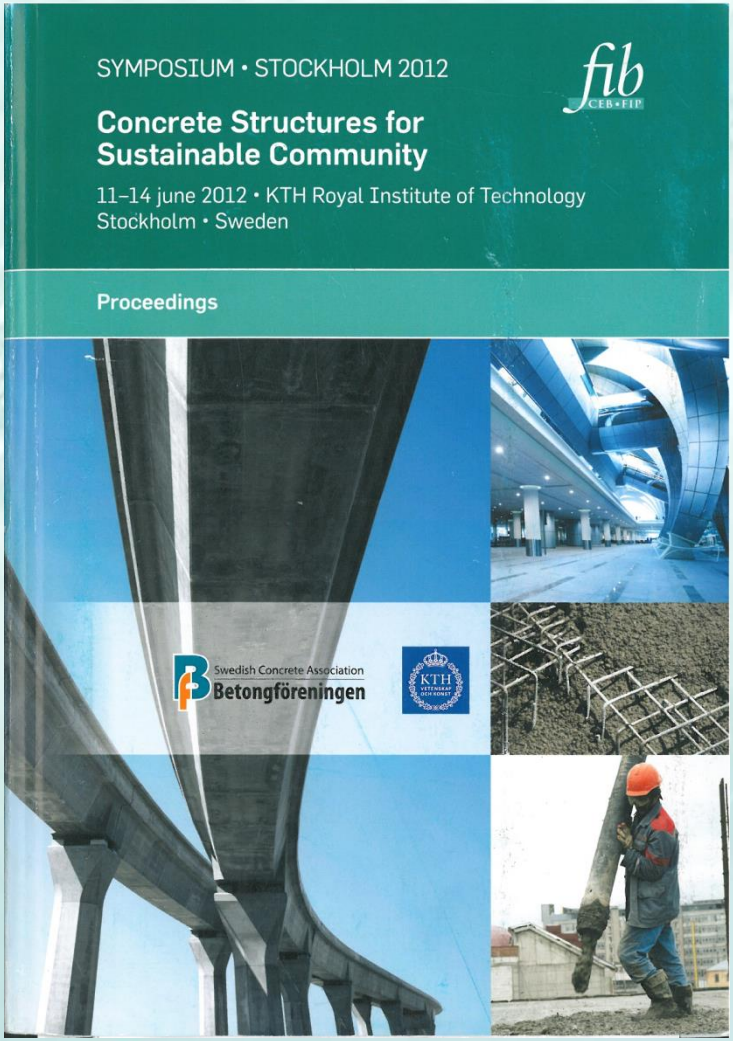
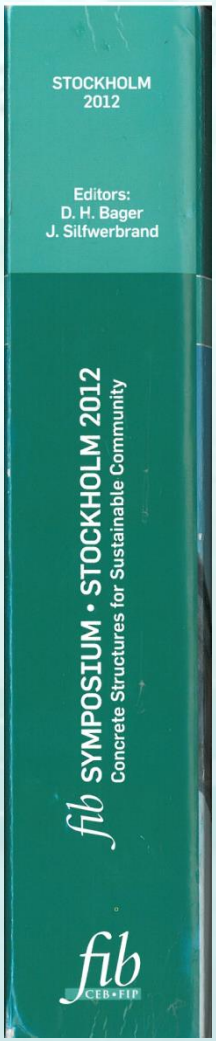
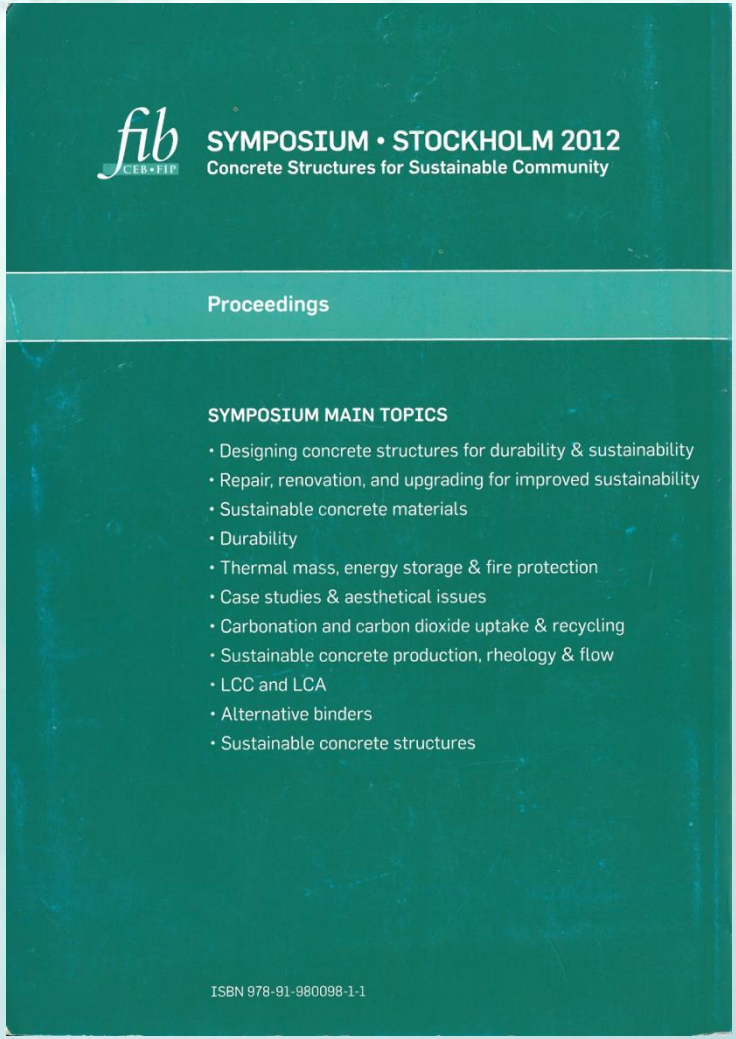
Proceedings of *fib* Symp 2012 Stockholm







Symposia and Congresses

PROCEEDINGS ⟹ **We have to improve the acceptance of our Proceedings**

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COM9