

HISTORY OF FIB INTERNATIONAL PHD SYMPOSIA IN CIVIL ENGINEERING



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The International PhD Symposia in Civil Engineering were developed to increase the international exposure of young researchers preparing their PhD Theses. It has been realised that the PhD students needed a particular forum above their PhD programmes to present and discuss the results of their ongoing research and to collect pieces of advice on how to continue the research. This forum should have been very similar to what we generally have for technical or scientific presentations and to collect opinions on a large scale. It is called PhD Symposium. Many thanks for the continuous support of CEB (Comité Euro- International du Béton) then to fib (International Fédération du Béton).

The PhD Symposium in Civil Engineering system was initiated by the Faculty of Civil Engineering at the Budapest University of Technology (BME) in 1996. Many universities have successfully followed this idea in Europe, North America and Asia:

1996 Budapest Univ. of Techn. (BME), Budapest, Hungary
1998 Budapest Univ. of Techn. (BME), Budapest, Hungary
2000 University of Applied Sciences, Vienna, Austria
2002 Technical Univ. of Munich and Univ.
of Federal Armed Forces Munich, Munich Germany
2004 Research School Structural Eng.,
Delft University of Technology, Delft, The Netherlands
2006 ETH Zürich, Zürich, Switzerland
2008 University Stuttgart, Stuttgart, Germany
2010 Tech. Univ. of Denmark, Lyngby, Denmark

2012 Karlsruhe Institute of Techn. (KIT),
Karlsruhe, Germany
2014 Université Laval, Quebec City, Canada
2016 The Tokyo University, Tokyo, Japan
2018 Technical Univ. of Prague, Prague, Czechia
2020 University Gustave Eiffel, Paris, France
2021 University Gustave Eiffel, Paris, France
2022 University of Rome, Tor Vergata, Rome, Italy
2024 Budapest University of Technology and
Economics (BME), Budapest, Hungary

Keywords: PhD, PhD Symposia, PhD research, PhD candidates, research objectives, scientifically new results, research and applications

1. IMPORTANCE OF PHD

The highest level in the university curriculum is PhD research. The objective of the PhD system is to provide highly qualified engineers who can lead research and teach, on the one hand, or realise special applications, on the other hand.

The PhD research should always include a wide knowledge of related basic subjects and a deep knowledge of specific research areas.

Every PhD system requires a synthesis of results with clarification of a new and promising field of development. These new developments are essential for universities' future activities and for proceeding with technical solutions in the industry.

The selection of PhD candidates is a careful process at universities to ensure successful PhD research. Key factors for the success of PhD research are the selection of the PhD topic, the dedication of the PhD student to the topic, the ability of the PhD student to synthesise results, and the supervision of the PhD research.

The system of PhD studies differs slightly from different universities. Still, the basic requirements are practically the same: a high-level PhD Thesis should be submitted within a limited period.

The pressure on the PhD students is high, especially in recognition of the level of results.

The general rule for the PhD candidate is to defend the Thesis in front of a PhD Committee of experts from the own university or outside of the university.

The organisation of the PhD Thesis is not the same in various universities: there could be a limit on the number of pages.

A PhD degree from anywhere is considered to be ready to solve complex questions.

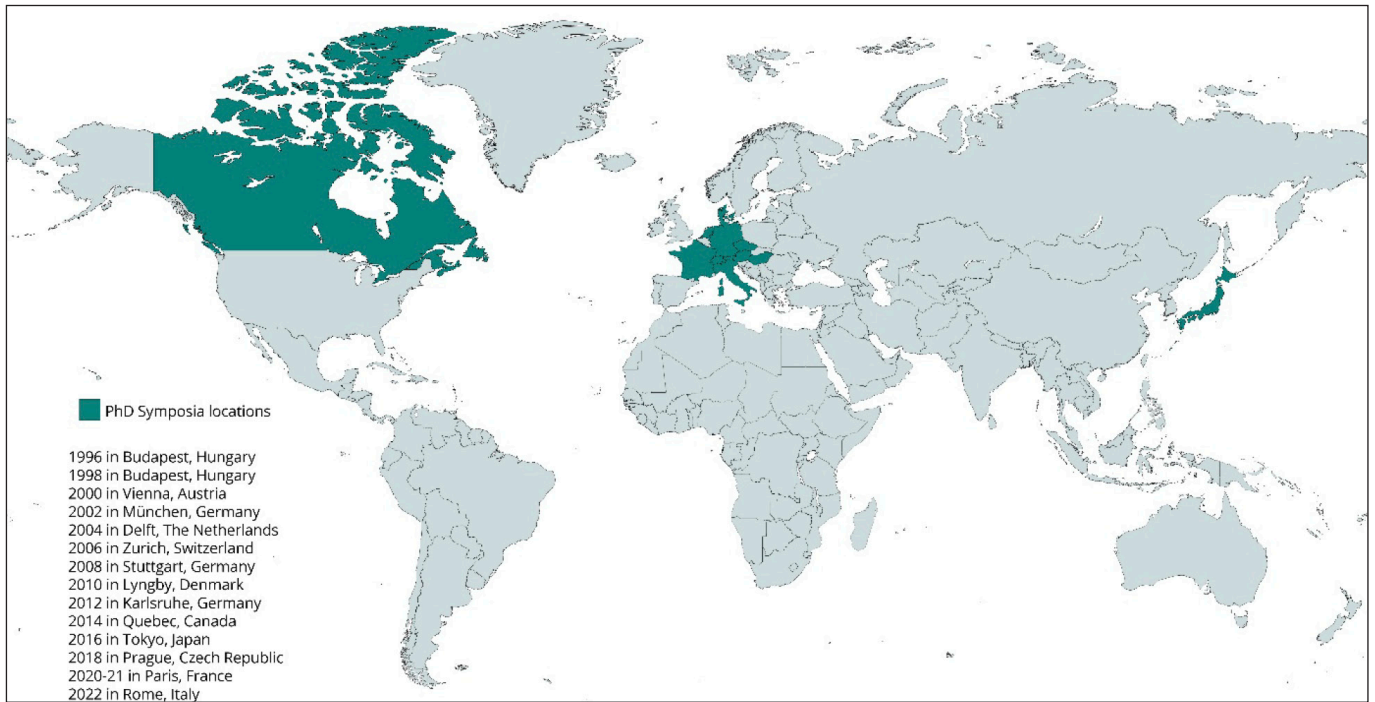
2. IDEA OF PHD SYMPOSIA

It is a pleasure to summarise the intentions and the successes of the PhD Symposia.

The principal intention of developing the first idea for an international PhD Symposia was to increase the international exposure of young researcher preparing their PhD Thesis. This is a challenging time for them with a lot of effort before the synthesis of results provides the final conclusions to submit the PhD Thesis.

You can find the locations of the International PhD Symposia in Civil Engineering in *Fig. 1*, and also which has already been planned for the next year.

The Faculty of Civil Engineering at the Budapest University of Technology (BME) initiated the system of the International PhD Symposium in Civil Engineering in 1996 (the present name is Budapest University of Technology and



Next Symposium: 2024 in Budapest, Hungary

Fig. 1: Locations of the International PhD Symposia in Civil Engineering 1996-2024 (Courtesy to *fib*) (Table 1)

Economics, BME). At Openings, it is often mentioned that „Prof. György L. Balázs developed the concept, and the first edition took place in 1996 in Budapest”.

The reason for initiating such a special Symposium was to help the PhD students succeed with their PhD research and their PhD defence.

It finally realised that the PhD students needed a *special*

forum above their PhD programmes to present and discuss the results of their ongoing research and to collect advice on how to continue the research. This forum should have been very similar to what we generally have for technical or scientific presentations and to gather opinions on a large scale. It is called PhD Symposium.

Fig. 2: The Symbolic Stone of the PhD Symposia at the events at Karlsruhe Institute of Techn. (KIT), PhD Symposium 2012 and at Université Laval, Quebec City, Canada, PhD Symposium 2014



Bronze relief at the front of the Symbolic stone



Back plate at the Symbolic stone to include the names of organizing universities



A Symbol of the PhD Symposia – short name: PhD stone – was developed at the beginning as a piece of Onyx natural stone of 11 kg with a bronze relief in front and a copper plate indicating the names of the subsequent who organised it (Fig. 2).

3. STRUCTURE OF PHD SYMPOSIA

The system of the PhD Symposia is to have oral presentations by the PhD students themselves. Then, the presentations are discussed immediately afterwards. The main results of the study are summarised in the Symposium Proceedings.

3.1 Obligatory discussion time after every presentation

An essential role of the PhD Symposium is to help the PhD students prepare for the defence of the Thesis. During the defence of the Thesis, the PhD candidate has to answer complex questions orally concerning the technical content of the Thesis.

One important speciality of the PhD Symposium is to have *20 minutes of presentation time and an obligatory 10 minutes of discussion time after every presentation, or alternatively, 15 minutes of presentation time and an obligatory 15 minutes of discussion time after every presentation.* In any case, define a block of 30 minutes for every presentation. The Chairmen are responsible for reasonably using the discussion time. The audience is, of course, allowed to ask questions too.

The unique characteristics of the PhD Symposia are summarised in the following:

1. *Only PhD candidates and not their supervisors are allowed to give the presentations.*
2. *Ample time is given for discussions after every presentation. Discussions are essential parts of these Symposia. This way, we want to help our young colleagues proceed with their research. Chairmen and charladies are reasonable to stimulate discussions.*
3. *The Symposia provides good opportunities to meet other researchers from the same or similar fields to your research fields.*
4. *Finally, at these Symposia, the registration fee must be low (I suggest not more than 200 EURs as the early bird) in order not to stop any young colleagues from participating.* These objectives were established in 1996 during the 1st International PhD Symposium.

The international character of the PhD Symposia has been created by the 1st PhD Symposium in Budapest owing to the immediate support of an international association the Comité Euro- International du Béton (CEB). Then it was supported by *fib*. CEB merged with FIP in 1998 and formed *fib* = International Fédération du Béton.

3.2 Chairpersons

Chairpersons of the Sessions are always invited from an internationally recognised university. Co-chairs are also professors or colleagues from the industry with PhD degrees.

A new idea that successful works – established at the PhD Symposium 2020 Paris – to have a third Co-chair carefully selected from young engineers (with or without PhD degree).

3.3 Evaluations and Prizes

All written and oral presentations are evaluated by the Chairpersons and discussed by the Scientific Committee.



Fig. 3: Opening speech of Prof. Josée Bastien during the PhD Symposium 2014 at Université Laval in Quebec City

Prizes are delivered by the Closing ceremony for the best presentations.

3.4 Organising universities

It is always organised by an important university in civil engineering by Professors in Civil Engineering. There is always a preliminary list of interested universities to organise in the future.

There is a unique process to deliver the Symbolic Stone of the event from one organiser to the other. Fig. 3 indicates the delivery from Quebec City to Tokyo.

3.5 Proceedings

For every PhD Symposia in Civil Engineering the written form of presentations are published in the Proceedings that are available free of charge on the internet (list appended).

3.6 Organising universities

It is always organised by an important university in civil engineering by Professors in Civil Engineering. Many thanks for the professor colleagues for offering their time and efforts to organize the PhD Symposia at their universities and in the same time for helping the PhD students. The collaboration of universities was excellent. The collaboration of the Karlsruhe Institute of Technology (KIT) as organizer for 2012 and the Université Laval, Quebec City as organizer for 2014 is symbolically indicated in Fig. 3 from the speech of Prof. Josée Bastien at the Opening of the PhD Symposium 2014 at Université Laval in Quebec City.

There is a unique process to deliver the Symbolic Stone of the event from one organiser to the other. Fig. 3 indicates the delivery e.g. from the

- Technical University of Denmark, Lungby (2010) to the Karlsruhe Institute of Technology (2012) (Fig. 4.a),
- the Karlsruhe Institute of Technology (2012) to the Université Laval, Quebec City (2014) (Fig. 4.b)
- the Université Laval, Quebec City (2014) to The University of Tokyo (Fig. 4.c)

4. PARTICIPATING UNIVERSITIES

Typically, 40-60 universities are represented by PhD Symposia. This indicates an interest from many countries and many universities.

Participation from BME, Hungary, was always considerably high, with 6 to 15 participants. An example of Karlsruhe in 2012 is shown in Fig. 5 for 10 BME participants.

5. LEVEL OF PHD SYMPOSIA

The general opinion of the previous PhD Symposia about the level of presentations is very high based on the following reasons:



Fig. 4.a: The Scientific Committee of Professors for the Technical University of Denmark, Lungby (2010) and delivery of the Symbolic Stone to the Karlsruhe Institute of Technology (2012)



Fig. 5: Participants from BME, Hungary, at the PhD Symposium 2012 KIT Karlsruhe, Germany



Fig. 4.b: The Scientific Committee of Professors for the Karlsruhe Institute of Technology (2012) and delivery of the Symbolic Stone to the Université Laval, Quebec City (2014)

- only PhD candidates are allowed to give presentations who work hard on an interesting research topic to reach significant, reliable results,
- the PhD candidates prepared for an extended discussion time (longer than any other conferences) after every presentation. That means the speakers must be prepared very carefully,
- the PhD candidates intend to understand the topic fully; hence, they go into many details experimentally, analytically, or numerically respectively.

6. PROFESSORSHIP RELATED TO THE PHD SYMPOSIA

To receive a professorship is difficult at any university in the world. It requires a high quality of research and teaching capacity and successful coordination in research work to be recognised internationally. It means that our research is embedded into a judgement of the international research community and, in this way, the evaluation of the professorships, too.

We intend to establish a collection of names of colleagues who participated as a PhD students at any of the PhD Symposia and completed their career as Profs. or Assoc. Profs.

7. CONCLUSIONS

The *fib* International PhD Symposium is a special forum for PhD students in civil engineering to help to finalise their PhD Thesis and defend it.

The unique characteristics of the PhD Symposia are summarised in the following:

a. *Only PhD candidates and not their supervisors are allowed to give the presentations.*

b. *Ample time is given for discussions after every presentation.*

Discussions are essential parts of these Symposia. This

Fig. 4.c: The Scientific Committee of Professors for PhD Symp 2014 Quebec City and delivery of the Symbolic Stone for PhD Symp 2016 Tokyo



way, we want to help our young colleagues proceed with their research. Chairpersons are reasonable to stimulate discussions.

c. *The Symposia provides good opportunities to meet other researchers from the same or similar fields to your research fields.*

d. Finally, at these Symposia, *the registration fee must be low* (I suggest not more than 200 EURs as the early bird) in order not to stop any young colleagues from participating.

These objectives were established exactly in the same way in 1996 during the 1st International PhD Symposium and kept all along.

8. ACKNOWLEDGEMENTS

Many thanks for the international associations CEB then fib for their continuous support of this unique event and providing

the worldwide network of universities and industrial partners for participating in research and innovations.

Many thanks for the organizing universities for offering their possibilities and giving the chance to see their Doctoral Schools: Budapest University of Technology and Economics (BME), University of Applied Sciences, Wien, Technical University of München and Univ. of Federal Armed Forces Munich, ETH Zürich, University Stuttgart, Technical University of Denmark (DTU), Lyngby, Karlsruhe Institute of Technology (KIT), Université Laval, Quebec City, The Tokyo University, Czech Technical University, Prague, Gustav Eiffel University, Paris, Gustav Eiffel University, Paris, University of Rome, La Torre Vergata, Research School Structural Eng., Delft University of Technology,

Special thanks for the professor colleagues for offering their time and enthusiasms to organize the PhD Symposia and in the same time for helping the PhD students for their successful PhD research.

Table 1: PhD Symposia in Civil Engineering 1996 – Organising universities and the names of main organizers

Nr.	Year	Organising universities	Country	Name of main organisers
1.	1996	Budapest University of Technology (BME)	Hungary	Prof. György L. Balázs
2.	1998	Budapest University of Technology (BME)	Hungary	Prof. György L. Balázs
3.	2000	University of Applied Sciences, Wien	Austria	Prof. Konrad Bergmeister
4.	2002	Technical University of München and Univ. of Federal Armed Forces Munich	Germany	Prof. Peter Schiessl Prof. Norbert Gebbeken Prof. Manfred Keuse Prof. Konrad Zilch
5.	2004	Research School Structural Eng., Delft University of Technology	The Netherlands	Prof. Joost Walraven Prof. Johan Blaauwendraad Prof. Tom Scarpas Prof. Bert Snijder
6.	2006	ETH Zürich	Switzerland	Prof. Peter Marti
7.	2008	University Stuttgart	Germany	Prof. Rolf Eligehausen Prof. Christoph Gehlen
8.	2010	Technical University of Denmark (DTU), Lyngby	Denmark	Prof. Gregor Fischer Assoc. Prof. Mette Geiker Assoc. Prof. Ole Hededal Assoc. Prof. Lisbeth Ottosen Prof. Henrik Stang
9.	2012	Karlsruhe Institute of Technology (KIT)	Germany	Prof. Harald Müller Assoc. Prof. Michael Haist Assoc. Prof. Fernando Acosta
10.	2014	Université Laval, Quebec City	Canada	Prof. Josée Bastien Prof. Nicolas Rouleau Prof. Mathieu Fiset Prof. Mathieu Thomassin
11.	2016	The Tokyo University	Japan	Prof. Koich Maekawa Dr. Akio Kasuga
12.	2018	Czech Technical University, Prague	Chechia	Prof. Petr Hajek Prof. Jan Vitek
13.	2020 & 2021	Gustav Eiffel University, Paris	France	Prof. Jean-Michel Torrenti Prof Fabrice Gatuingt
14.	2022	University of Rome, La Torre Vergata, Roma	Italy	Prof. Marco di Prisco Prof. Alberto Meda
15.	2024	Budapest University of Technology	Hungary	Prof. György L. Balázs Dr. Sándor Sólyom

INTERNATIONAL PHD SYMPOSIA IN CIVIL ENGINEERING SUPPORTED BY *fib*

1996 Budapest Univ. of Techn. (BME)
1998 Budapest Univ. of Techn. (BME)
2000 University of Applied Sciences, Vienna
2002 Technical Univ. of Munich and Univ.
of Federal Armed Forces Munich
2004 Research School Structural Eng.,
Delft University of Technology

2006 ETH Zürich
2008 Universität Stuttgart
2010 Tech. Univ. of Denmark, Lyngby
2012 Karlsruhe Institute of Techn. (KIT)
2014 Université Laval, Quebec City
2016 The Tokyo University
2018 Technical Univ. of Prague
2020 University Gustave Eiffel, Paris
2021 University Gustave Eiffel, Paris
2022 Uni. of Rome” Tor Vergata
2024 Budapest Univ. of Technology and Economics (BME)

PHD SYMPOSIA PROCEEDINGS



1st *fib* International PhD Symposium in Civil Engineering

May 1996, Technical University of Budapest, Budapest, Hungary

order info:

Balázs, György (Ed.)
Sokszorosított a Műegyetemi Kiadó
Risograph technológiával
Fedelos vezető: Veress János
Munkaszám: 96-Mk10
E-Mail: fib@eik.bme.hu
ISBN 963 420 504 6



2nd *fib* International PhD Symposium in Civil Engineering

August 1998, Technical University of Budapest, Budapest, Hungary

order info:

Balázs, György (Ed.)
ISBN 963 420 560 7
Publishing Company of Technical University of Budapest
Head: János Veress
Offset printing No: 98-0134
E-Mail: fib@eik.bme.hu



3rd *fib* International PhD Symposium in Civil Engineering

October 2000, University of Agricultural Sciences Vienna, Vienna, Austria

order info:

IKI - Institute for Structural Engineering,
BOKU - University of Agricultural Sciences,
Peter Jordanstr. 82, A-1190 Vienna, Austria
Phone: +43 1 47654 5250
Fax: +43 1 47654 5292
E-mail: lilo@iki.boku.ac.at
ISSN 1028-5334



4th *fib* International PhD Symposium in Civil Engineering

September 2002, Technische Universität München, Universität der Bundeswehr München, München, Germany

order info:

Springer-VDI-Verlag GmbH & Co. KG
Düsseldorf, Germany
ISBN 3-935065-09-4



5th *fib* International PhD Symposium in Civil Engineering

2004, Delft University of Technology, Delft, The Netherlands

order info:

W. Sutjiadi
Faculty of Civil Engineering and Geosciences
Delft Univ. of Technology
Stevinweg 1, 2628 CN Delft, The Netherlands
Tel: +31 15 278 4665
Fax: +31 15 278 7313
E-mail: w.sutjiadi@ct.tudelft.nl
ISBN Vol 1: 90 5809 677 7
ISBN Vol 2: 90 5809 678 5



6th *fib* International PhD Symposium in Civil Engineering

August 2006, ETH Zurich, Zurich, Switzerland

order info:

fib secretariat
Case Postale 88,
CH-1015 Lausanne, Switzerland
Phone: + 41 21 693 2747
Fax: + 41 21 693 6245
E-mail: fib@epfl.ch



7th *fib* International PhD Symposium in Civil Engineering

September 2008, University of Stuttgart, Stuttgart, Germany

order info:

PhD Symposium Secretariat
IWB Universität Stuttgart
Pfaffenwaldring 4
70569 Stuttgart, Germany
Phone: +49 711 685 63320
Fax: +49 711 685 67681
E-mail: stump@iwb.uni-stuttgart.de



8th *fib* International PhD Symposium in Civil Engineering

June 2010, Technical University of Denmark, Kgs. Lyngby, Denmark

order info:

Technical University of Denmark
Department of Civil Engineering, Brovej, Building 118,
DK-2800 Kgs. Lyngby, Denmark
Phone: + 45 45 25 17 00
Fax: + 45 45 88 32 82
E-Mail: byg@byg.dtu.dk



9th *fib* International PhD Symposium in Civil Engineering

July 2012, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Order info:

KIT Scientific Publishing
Straße am Forum 2
D-76131 Karlsruhe, Germany
Phone: + 49 721 608 43104
Fax: + 49 721 608 44886
E-mail: info@ksp.kit.edu
available as download at: <http://www.ksp.kit.edu>



10th *fib* International PhD Symposium in Civil Engineering

July 2014, Université Laval, Quebec, Canada

Order info:

Research Centre on Concrete Infrastructure (CRIB),
Université Laval,
Quebec (Quebec),
Canada, G1V 0A6
Phone : + 418-656-3303
E-mail : josee.bastien@cci.ulaval.ca
available as download at: <https://www.fib-phd.ulaval.ca>

15th fib PhD Symposium Hungary 2024

August 28th to 30th 2024
Budapest, Hungary

This is a special invitation for you to participate in the *fib* PhD Symposium 2024 Budapest and to give your presentation as well as to extend your communication with the researchers at this event.

The system of the PhD Symposium in Civil Engineering was initiated by the Faculty of Civil Engineering of the Budapest University of Technology and Economics (BME) in 1996. It has been organized every second year at a famous university then.

The reason for initiating such a special Symposium was to provide help to the PhD students to be successful with their PhD research and their PhD defence.

Hope to meet you there,



BUDAPEST UNIVERSITY
OF TECHNOLOGY AND ECONOMICS
Faculty of Civil Engineering - Since 1782



Registration and fees

Registration visiting

<https://fibphdsymp2024.bme.hu>

The conference fee will be € 250. This covers participation, coffee breaks, lunches, social dinner and the e-proceedings.



Dates and Registration

February 29, 2024	Submission of abstracts
March 31, 2024	Acceptance of abstracts
May 15, 2024	Full paper submission
June 15, 2024	Full paper review
June 30, 2024	Full paper acceptance



Organizing Committee

György L. Balázs, Sándor Sólyom, András Bíró, Szabolcs Szinvai

Faculty of Civil Engineering

Budapest University of Technology and Economics

Műgyetem rkp 3, 1111, Budapest, Hungary

fibphdsymp2024@emk.bme.hu



Topics

You are kindly invited to submit your manuscript that is particularly relevant to one or more of the following topics:

Structures

- Structural analysis, modeling and design
- Bridges, dams and tunnels
- Buildings and shells
- Structural reliability and risk analysis

Concretes

- Innovations in concrete and concrete technology
- History of concrete structures and assessment of heritage concrete structures
- 3D concrete printing

Objectives

1. **Only PhD candidates are allowed to give the presentations** and not their supervisors.
2. There is ample time for discussion after each presentation. Discussions are an essential part of the Symposium. Chairmen and chairwomen are encouraged to stimulate discussion.
3. **The Symposium provides good opportunities to meet other researchers** from the same or similar fields of your research fields.
4. **The registration fee must be low** in order not to stop any young colleagues from the participation.

Sustainability, durability, service life

- Sustainability of materials and structural systems
- Durability of existing structures and durability for future structures
- Life cycle assessment and design. Rest life

Maintenance, retrofitting, strengthening

- Assessment and structural health monitoring
- Composites for concrete structures
- Maintenance, retrofitting or strengthening of concrete structures

The Symposium

The PhD Symposia started in 1996. The concept was developed by Prof György Balázs. The first edition took place in 1996 in Budapest, Hungary with the support of *fib* (*International Fédération du Béton*).

The Symposium provides a **special forum** for PhD students to present and discuss the results of their ongoing research and to gather advice on how to continue the research.

The system of the PhD Symposium is to have oral presentations by the PhD students themselves, then the presentations are immediately discussed, which is an obligatory and outmost important part of the PhD Symposium.

The main results of the study are summarized in the Symposium Proceedings which is openly available for all previous PhD Symposia.

Evaluation and Prizes

All the written and oral presentations are evaluated by the Chairpersons and discussed by the Scientific Committee. Prizes are delivered by the Closing ceremony for the best presentations.