



**Jan BILISZCZUK, Professor, PhD, Eng.**  
Chairman of Footbridge 2011 Organizing Committee

**Paweł HAWRYSZKÓW, PhD, Eng.**  
Co-Chairman of Footbridge 2011 Organizing Committee

Wrocław University of Technology  
Wrocław, Poland

## **4<sup>th</sup> International Footbridge 2011 Conference in Wrocław, Poland**

The 4<sup>th</sup> Footbridge Conference was held in Wrocław, Poland on 5-8 July, 2011. Previous editions of the Conference took place in:

- Paris, 20-22 November, 2002;
- Venice, 6-8 December, 2005;
- Porto, 2-4 July, 2008.

During the Conference in Porto the Scientific Committee decided that the next edition of the Conference will be organized by Wrocław University of Technology.

Polish edition of the Footbridge Conference was held under the auspices of:

- the International Association for Bridge and Structural Engineering (IABSE);
- Civil Engineering Committee of the Polish Academy of Sciences;
- Polish Ministry of Infrastructure;
- His Magnificence Rector of Wrocław University of Technology;
- the City of Wrocław.

Media patronage over the Conference was exercised by the following periodicals:

- Bridge design & engineering;
- MOSTY.

More than 300 participants (including students from a few Polish universities) from 30 countries attended the Conference.

The Scientific Committee, consisted of 44 experts from 21 countries, had ordered 7 keynote papers and qualified another 155 papers prepared by 328 authors (in total) to be published in the Conference proceedings.

The Conference proceedings have been published as:

- a) A4-sized hardcover book of 447 pages with 7 color printed keynote papers and 155 two-page abstracts (ISBN 978-83-7125-204-4, Dolnośląskie Wydawnictwo Edukacyjne publishing company) - Fig. 1;
- b) electronic book on a CD (ISBN 978-83-7125-205-1, Dolnośląskie Wydawnictwo Edukacyjne publishing company) comprising all Conference proceedings (all full papers); the electronic book has 1401 pages.



More information about the Conference Book can be found on:  
<http://www.footbridge2011.pwr.wroc.pl/papers.html> (to order the proceedings please contact Footbridge 2011 Secretariat: [footbridge2011@pwr.wroc.pl](mailto:footbridge2011@pwr.wroc.pl)).

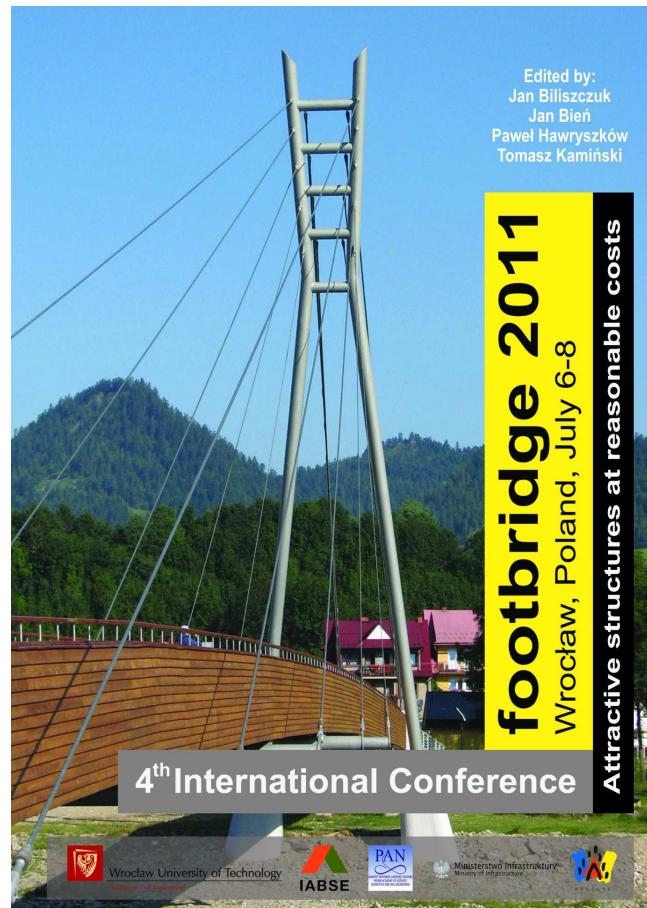


Fig. 1. Front cover of the conference proceedings (contact to order: [footbridge2011@pwr.wroc.pl](mailto:footbridge2011@pwr.wroc.pl)).

The ordered keynote papers with short summaries are presented hereafter.

- Brian Duguid: BENCHMARKING COST AND VALUE OF LANDMARK FOOTBRIDGES.

In the paper, the author compares the cost of 48 landmark footbridges constructed over the last 15 years in different countries. This serves as a background to a discussion on the advantages ensuing from the construction of such footbridges and on ways to estimate the additional value obtained when constructing landmark footbridges.

- Cezary Bednarski: THE “CHAINED” BRIDGE (ATTRACTIVE STRUCTURES AT REASANABLE COSTS).

The author, a well-known English architect (of Polish descent), presented his view on the architecture of the recently built footbridges.

- Jan Biliszczuk, Wojciech Barcik: FOOTBRIDGES IN POLAND – THE HISTORY AND PRESENT STATE.



The paper presents the history of development of this segment of bridge engineering in Poland and the present state. Its comparison with other countries appears fairly positive.

- Henryk Zobel, Thakaa Alkhafaji: CONTEMPORARY STRUCTURAL SOLUTIONS OF TIMBER PEDESTRIAN BRIDGES.

The authors presented the current state of structural and technological development of glued-laminated and solid timber footbridges.

- Enzo Siviero, Michele Culatti, Danila Natalini: CONCEPTUAL DESIGN OF FOOTBRIDGES IN THE SCHOOL OF ARCHITECTURE IN VENICE – ITALY.

The team of an eminent professor of architecture presented achievements of the Venice school of architecture in the area of shaping of bridges, mainly of footbridges.

- Aleksander Pavic: VERTICAL CROWD DYNAMIC ACTION ON FOOTBRIDGES: REVIEW OF DESIGN GUIDELINES AND THEIR APPLICATION.

The paper reviews the current state of dynamics normalization in bridge structures subjected to the influence of various forms of pedestrian traffic.

- Andrzej Flaga: WIND TUNNEL TESTS AND AERODYNAMICAL CALCULATIONS OF NON-TYPICAL FOOTBRIDGES.

The author presented issues related to wind tunnel tests of non-typical structures.

As can be seen, three of the ordered keynote papers were delivered by Polish authors, which enabled extensive presentation of Polish achievements in different areas of bridge engineering.

Fig. 2 shows countries that delivered papers. Poland is the leader (38,7 papers, which makes up 22,8% of the total number), then Italy (19,4 papers) and Spain (17 papers).

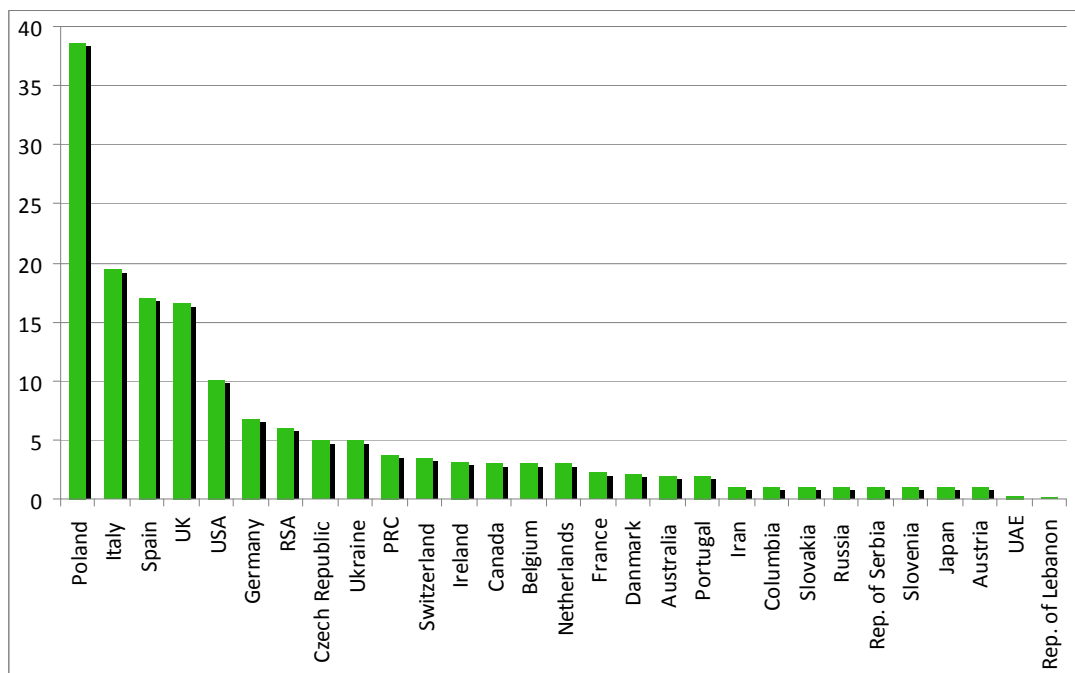


Fig. 2. Number of papers sent by authors from different countries.



A workshop (organized by Associate Professor Krzysztof Żółtowski from University of Technology in Gdańsk) was held on 5 July, 2011. During the workshop, 9 lectures, attended by ca. 60 participants, were given on topics related mainly to technological progress in materials. Discussions concerned progress in the usage of polymer composites, glued-laminated timber, aluminum, glass, carbon fiber elements and innovative cable-stayed systems for footbridges. Jürgen Hellmann from SOFiSTiK gave a special lecture on non-linear problems in footbridge mechanics.

In the evening, in the main building of Wrocław University of Technology, the Welcome Reception took place, concluded with a concert performed by a Wrocław Academy of Music quartet.

The Conference sessions started in the morning on 6 July, 2011 (Fig. 3). As part of the Opening Ceremony, Prof. Jan Bień gave a brief talk on Poland, the City of Wrocław and Wrocław University of Technology, whereas Maciej Hildebrand, PhD, delivered a paper entitled “Bridges in Poland”. Further, Prof. Jan Kmita and Prof. Jan Biliszcuk were presented with Gold Medals of the 20<sup>th</sup> Anniversary of Polish Society of Bridge Engineers. The medals were presented by the President of Polish Society of Bridge Engineers, Prof. Kazimierz Furtak, and by the President of the Lower Silesian Chamber of Polish Society of Bridge Engineers, Edmund Budka, eng. (Fig. 4).



Fig. 3. Opening Ceremony. Presiding (from the left): Paweł Hawryszków, Wojciech Radomski, Jan Bień, Jan Biliszcuk, Tadeusz Więckowski (Rector of Wrocław University of Technology), Helena Russell (Editor of Bridge Design & Engineering), Ueli Brunner (Executive Director of IABSE), Kazimierz Furtak, Antoni Szydło.

At night, on 6 July 2011, in the Town Hall, the Footbridge Awards 2011 Ceremony was held by Helena Russell, editor-in-chief of Bridge design & engineering (Fig. 5).



Fig. 4. Laureates of Gold Medals of the 20<sup>th</sup> Anniversary of Polish Society of Bridge Engineers (in the center: Jan Kmita and Jan Biliszcuk) accompanied by the President of Polish Society of Bridge Engineers, Prof. Kazimierz Furtak, and by the President of the Lower Silesian Chamber of Polish Society of Bridge Engineers, Edmund Budka.



Fig. 5. Footbridge Awards 2011 Ceremony in the Town Hall: a) Helena Russell announcing the results of the contest; b) waiting for the verdict; c) representatives of the design offices Ney&Partners and Schlaich, Bergermann&Partners collecting the prizes.



Throughout three days of the Conference, the plenary sessions took place in the morning and featured the ordered papers as well as papers selected by the Scientific Committee (Fig. 6, 7). In the afternoon, the sessions were held in three parallel streams. Also two poster sessions took place (Fig. 8).



Fig. 6. Speakers in the sessions: Enzo Siviero (Italy), Henryk Zobel (Poland), Mike Schlaich (Germany), Krzysztof Żółtowski (Poland).



Fig. 7. Conference participants

On the second day of the Conference, the Gala Dinner was held at the Regional Center for Business Tourism in the Centennial Hall Complex. First, Jerzy Onysyk, PhD, gave a talk on the history of the Centennial Hall, one of the most significant structures in the history of the world's concrete construction. The event featured the performance of Ashia Grzesik, an American artist of Polish descent.

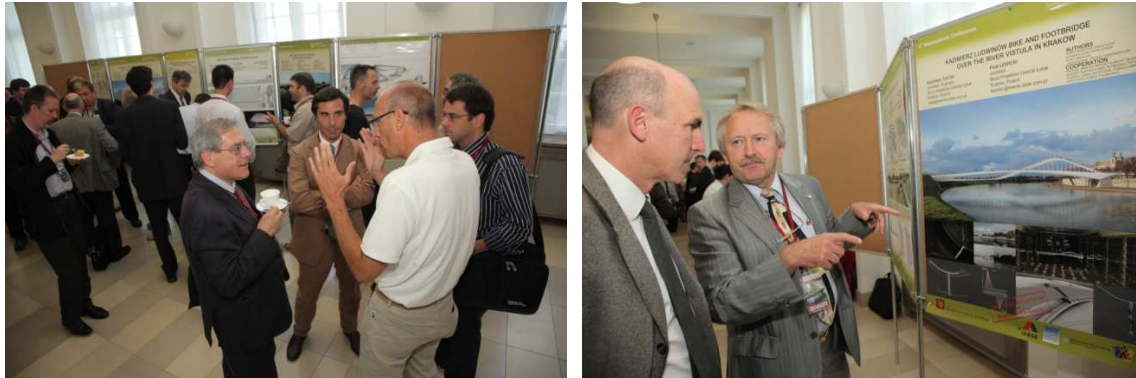


Fig. 8. Talks during the poster sessions. From the left – in the center Prof. Enzo Siviero (Italy), Prof. Mike Schlaich (Germany) and Prof. Jan Biliszczuk (Poland).

Paweł Hawryszków, PhD, from Poland, was awarded the Young Authors' Prize for his paper: **ANALYSIS OF DYNAMICAL SENSITIVITY AND COMFORT OF FOOTBRIDGES**. The paper concerns problems of the dynamic behaviour of footbridges and reception of vibrations by pedestrians. As the conclusion the author presented a concept of design and research procedures for pedestrian footbridges, prepared for practical application.

The Scientific Committee decided that the next edition of the Conference will be held in 2014 in London.

Prof. Mike Schlaich, from the Technical University of Berlin, reviewed and summed up the content of the Conference, stressing the high level of the delivered papers and the growing interest in this field of bridge engineering among engineers and architects.

It should be reminded that the subject of the Conference embraces three areas:

- 1) architectural shaping of footbridges;
- 2) structural and technological solutions;
- 3) structural mechanics, in particular the dynamical influence of pedestrian traffic.

The first area remains a ground for exploration of new, attractive architectural forms. However, it is often the case today that the authors (perhaps due to the crisis) consider cost rationalization. Attractive structures are built even on relatively low budgets.

As for the area of new solutions and technologies, timber and composite structures are becoming increasingly popular. Tensegrity structures and non-typical suspension structures are now fashionable. Steel pipe structures continue to be popular solutions.

In the area of footbridge dynamics, there has been an ongoing debate on the standardization of tests. This is a vital issue since, nowadays, particular research centers run tests according to their own procedures, which hinders comparison of the results.

On Saturday, 9 July, 2011, a technical tour to a cable-stayed bridge construction site in Wrocław was organized (tours of smaller groups took place also during the Conference). In total, the construction site of the biggest cable-stayed concrete bridge in Poland was visited by more than 50 participants from the UK, Russia, USA, China, Germany, France, the Netherlands, Australia, Serbia, Greece, Spain, Portugal, Italy and Poland.