

THE 10th JUBILEE CONFERENCE „SHELL STRUCTURES: THEORY AND APPLICATIONS”, SSTA2013, OCT. 16-18, 2013, GDAŃSK (POLAND)

Shells are basic structural elements of modern technology and everyday life. Examples are automobile bodies, water and oil tanks, pipelines, aircraft fuselages, nanotubes, graphene sheets or beer cans. Also Nature is full of living shells such as leaves of trees, blooming flowers, sea shells, cell membranes, double helix of DNA or wings of insects. In the human body arteries, the shell of eye, diaphragm, skin or pericardium are all shells as well.

The 10th Jubilee Conference „Shell Structures, Theory and Applications”, SSTA2013, took place in Gdańsk on 16-18th October, 2013. The Conference was organized by Department of Structural Mechanics and Bridge Structures, Faculty of Civil and Environmental Engineering of Gdańsk University of Technology authorized by Section of Structural Mechanics and Materials of Committee for Civil Engineering and Hydroengineering of the Polish Academy of Sciences as well as by Polish Society of Theoretical and Applied Mechanics. Previous conferences in this field were held in Cracow (1974), Gołuń (1978), Opole (1982), Szklarska Poręba (1986), Janowice (1992), and Jurata (1998, 2002, 2005, 2009).

The range of Conference topics was very wide and comprised theoretical modelling of behaviour of shell structures under external loads, analysis of their strength, stability and dynamics using various analytical, numerical and experimental methods, as well as unconventional examples of their design, service, expert assessment and failures.

The Organizers received 161 full-texts papers prepared strictly according to instructions of the CRC Press/Balkema (Taylor and Francis Group). These manuscripts were reviewed by members of the International Advisory Board and then refined according to suggestions of the reviewers. Finally, 137 papers were qualified for print in the Proceedings and for presentation at the Conference. All accepted papers were additionally adjusted to the publisher requirements and the English of some texts was improved. As a result of the editorial work, the volume of Conference proceeding was prepared and published just before the meeting: W. Pietraszkiewicz, J. Górski (eds.), *Shell Structures: Theory and Applications*, Vol. 3, CRC Press/Balkema, Taylor & Francis Group, London 2014, pp. XVI + 584, ISBN 978-1-138-00082-7. Publishing this volume by the leading world publishing house was an important achievement of the Organizers. All papers published in two previous volumes of Proceedings of 8th SSTA2005 and of 9th SSTA2019 were indexed in the database Web of Science easily accessible on Internet. It is hoped that also this Vol. 3 will be indexed in the Web of

Science which will allow all specialists of shell structures throughout the world to access the papers presented at 10th SSTA2013.

The volume of proceedings contains full texts of the following general lectures:

1. H. Altenbach (Germany), V.A. Eremeyev (Germany/Russia), *Actual developments of the nonlinear shell theory – State of the art and new applications of the six-parameter shell theory.*
2. M. Amabili, F. Alijani (Canada), *Nonlinear vibrations of shells: Experiments, simulations and applications.*
3. D. Chapelle (France), *3D-shell mathematical models and finite elements: From mathematical and physical insight to application examples.*
4. YH Zhang (China/USA), K-C Hwang (China), YG Huang (USA), *Mechanics design and analyses of stretchable electronics.*
5. I. Kreja (Poland), *On geometrically non-linear FEA of laminated FRP composite panels.*

The remaining full-text papers of the volume are grouped into six chapters: Theoretical modelling 31, Stability 26, Dynamics 17, Bioshells 4, Numerical analysis 29, and Engineering design 25. All 137 published papers came from 27 countries: 64 from Poland, 15 from Germany, 13 from Russia, 7.5 from Ukraine, 4 each from France, Austria and Japan, 3.5 from China, 2.5 from Latvia, 2 each from Armenia, India and United Kingdom, 1.5 from Slovak Republic, 1 each from Canada, Malaysia, Italy, Portugal, Taiwan, Turkey, Hungary, Slovenia and Spain, an 0.5 from USA, Brazil, Czech Republic, Greece, Saudi Arabia and Ethiopia. The authors of a number of joint papers came from different countries, so we have just approximated the number of authors to 0.5.

Finally, 150 participants from 21 countries took part in SSTA2013: 94 from Poland, 12 from Russia, 11 from Germany, 6 from Austria, 5 from Japan, 4 from France, 3 from Ukraine, 2 from Latvia, and 1 each from Canada, China, Ethiopia, Hungary, India, Italy, Portugal, Romania, Slovakia, Slovenia, the United Kingdom, the USA and Taiwan. Altogether 115 lectures published in the book of proceedings were presented: 5 general lectures, 88 oral lectures and 22 poster presentations.

Specialities of participants and subjects of presented lectures were representative to this field of research and technical applications. Virtually every lecture contained original research results and/or interesting, non-trivial engineering applications of shell structures. Lively discussions were carried out during the sessions and many of them prolonged also in lobbies. One should mention excellent organization of the Conference, good food service as well as a number of successful accompanying events: get-together party, conference banquet, concert of classical music, and excursions through Gdańsk and to Malbork. All this helped the participants from different countries and different scientific circles to meet together and discuss their problems in an informal atmosphere.

In view of the large number of lectures, the Conference was carried out in two parallel sessions; only general lectures and poster session were available to all participants. The authors of general lectures had 45 min. at their disposal (including

discussion), the authors of oral lectures had 15 minutes, while the results of posters were discussed in the first day for 2 hours in front of posters which were still available for the next two days. This arrangement has made it possible to complete the Conference within 2,5 days.

Because of the large number of very good lectures as well as their modern technical presentation, the 10th SSTA2013 Conference became a significant international meeting of specialists of shell structures.

We would like to thank very much indeed our Colleagues from the International Advisory Board and from the Organizing Committee, to Technical Service of the Conference, as well as to all the sponsors whose active collective engagement for the common aim has made it possible to successfully run this so much needed scientific meeting.

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