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# XXVII LSCE 2021 LIGHTWEIGHT STRUCTURES IN CIVIL ENGINEERING CONTEMPORARY PROBLEMS

Book of Abstracts

2<sup>nd</sup>-3<sup>rd</sup> December 2021, Łódź, Poland

Edited by Jacek Szafran and Marcin Kamiński

Łódź University of Technology

# LIGHTWEIGHT STRUCTURES IN CIVIL ENGINEERING

CONTEMPORARY PROBLEMS

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Organized by Polish Chapters of  
**International Association for Shell and Spatial Structures**  
Łódź University of Technology

Faculty of Civil Engineering, Architecture  
and Environmental Engineering

**XXVII LSCE**  
Łódź, 2<sup>nd</sup> – 3<sup>rd</sup> of December 2021



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**Robert Studziński** – *Poznań University of Technology, Poland*

**Piotr Tazowski** – *IPPT PAN, Poland*

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### Memoirs of Professor Jan B. Obrębski

Outstanding scientist and educator, a recognized expert in the field of construction, Emeritus Professor of Warsaw University of Technology, died in Warsaw on 8 September 2020. In scientific research Professor Obrębski specialized in the strength of materials and mechanics of thinwalled beams. In 1988 he became a member of the IASS, becoming very active right away. Starting in 1995 he organized annual seminars of the members of the Polish Chapters of the IASS, called "Lightweight Structures in Civil Engineering". These seminars are continued until today by younger colleagues of Professor Obrębski.

Professor Jan B. Obrębski was a righteous man, and an outstanding scientist and organizer of science.

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## Obituary for prof. Jan Obrębski

It was a hot June day of 1995 when we met for the first time at Faculty of Civil Engineering in Warsaw University of Technology in His small room. This was at the end of IASS Conference and started by prof. J. Obrębski initiative to establish Polish Chapter of this Association in our country. As Ph.D. Student I had the feeling that I was participating in something very important because this was the first invitation to the international conference I have gotten by my name. At that time I would never guessed what the profits to my research career this meeting would bring. The truth is that I have participated a little bit accidentally in this Conference but starting everything from the very beginning I would certainly do the same.

There is no doubt that the idea of Polish Chapter of IASS and its implementation brought throughout 25 years many Ph.D. and D.Sc. dissertations, many new ideas, papers and discussions. Most of my Ph.D. students participated in IASS meetings and presented our works since that gave them an opportunity to speak for large and friendly audience. Prof. Obrębski influence was always very remarkable - the abstract templates for IASS meetings have still His name as the Author; initial logo of Polish chapter was also authorized by Prof. Obrębski and could not be modified many years later.

A really unforgettable IASS event was the Conference in 2002 held in Forum Hotel in Warsaw, while a huge number of the participants from all around the world were present and where the very heavy conference book was distributed. Those days no one could even imagine personal restrictions we have right now due to the COVID.

Two features of Prof. J. Obrębski made Him very unique – energy and devotion – especially remarkable in Polish IASS society. Each time He asked personally all the colleagues to submit and to present anything, He prepared also His own presentations and shared with our community His research findings and the projects. He prepared the IASS books mostly by Himself by reviewing most of the submissions, asking for the reviewers, sending reminders, composing and printing these books being one person company. During IASS Polish Chapter meeting in Łódź in 2011 prof. Obrębski brought the entire set of conference books in train by Himself and we spent fantastic dinner in Jewish restaurant in Manufaktura together.

Prof. J. Obrębski was not only the great manager of IASS but also the scientist and engineer. He was famous for His projects and opinions of monumental buildings in Poland, but also for His numerical studies in the lightweight structures area with the use of the Finite Difference Method. As the Teacher He was famous for the lectures and for the academic textbook treating about Strength of Materials with the special emphasis put on the thin-walled structural elements. He was also the face of Polish IASS society during most of the international conferences and congresses of this society and He co-edited the few international journals related to the IASS research area.

Prof. Obrębski with no doubt appreciated His collaborators – one could recall the IASS meeting in Warsaw University of Technology in 2005, where He gave IASS memorial medals to the people strongly associated with this idea including myself. I was unable to come for Conference opening ceremony, so that prof. Obrębski used some further conference break to honor by the medals active IASS people seeing me at the audience.

We all thought that prof. Obrębski would be among us with His thoughts, opinions, criticism and sincere help to the Polish IASS people with the next many, many years. I am very grateful that we got to know each other almost thirty years ago and that we met so many challenges together.

*Marcin Kamiński*

Chairman of the Scientific Committee

## Foreword

For over a quarter of a century, every first Friday of December has been reserved for many people for a long-awaited event – the LSCE conference. For all members of Polish Chapters of the International Association for Shell and Spatial Structures, as well as for many other engineers and researchers, this is an opportunity to meet colleagues and share the results of their latest work with them. This year's meeting is already the 27<sup>th</sup> of this series.

Numerous participation of Polish researchers in the work of the IASS in the mid-1990s resulted in the establishment of the Polish Chapter of the IASS, which was the largest national group in the Association. The LSCE conference became a forum for meetings and a place for coordination of organizational activities. From the very beginning, however, it attracted participants from many other countries and was never limited only to Poland.

The first meeting was held in Warsaw in 1995. In the following years, other Polish cities were also meeting places: Olsztyn, Rzeszów, Bydgoszcz, Łódź, Kraków and Wrocław. The conference's publication output includes more than a thousand delivered papers and twenty-six conference books and one monograph.

It is impossible not to mention the initiator of the LSCE conference, Professor Jan B. Obrebski, who died in September of last year. For many years he was the main organizer of the conference, and after delegating these responsibilities to younger colleagues, he was still the *spiritus movens* of all activities. Many participants of the conference, and not only, owed their contacts with IASS, and in many cases also beginning of the international activity to his passion and perseverance. The continuation of the organization of the LSCE conference and the strengthening of its scientific position will be the best tribute to the Professor.

This year, the conference is organized by colleagues from the Lodz University of Technology. They raised the bar in the preparation of conference publications. In addition to the traditional book of abstracts, a monograph will also be published, and selected papers will be published in the Bulletin of the Polish Academy of Sciences: *Technical Sciences*.

Due to a large number of participants, the LSCE conference was scheduled for two days for the first time in a long time. This is an excellent signal that it has a stable position and is attracting the attention of a growing group of researchers.

Finally, on behalf of the Standing Organizing Committee of Polish Chapters of the IASS and of all the Symposium participants, I wish to thank the organizing team and the sponsoring institutions and companies for their invaluable contributions to LSCE 2021. Many individuals have dedicated their time and effort toward creating a successful professional and social gathering. In particular, I would like to thank the symposium Organizing Committee chaired by Professor Jacek Szafran, and the symposium Scientific Committee chaired by Professor Marcin Kamiński.

*Romuald Tarczewski*

Chair of the Standing Organizing Committee  
of Polish Chapters of the IASS  
Member of the IASS Advisory Board



## TABLE OF CONTENTS

### GENERAL LECTURES

- |    |  |    |
|----|--|----|
| 1. | <i>Lightweight Steel Frames Manually Prestressed</i>                                   | 11 |
|    | <b>K. Kawaguchi</b>  |    |
| 2. | <i>The Effect of Thunderstorm Extreme Winds on Lightweight Structures</i>              | 15 |
|    | <b>M.P. Repetto, M.T. Mengistu</b>   |    |
| 3. | <i>Design, Engineering and Installation of World Largest Cable Net Roof</i>            | 19 |
|    | <b>I.G. Siotor, I. Wright</b>  |    |
| 4. | <i>Use of Group Theory in the Reduction of Vector Spaces of Problems with Symmetry</i> | 25 |
|    | <b>A. Zingoni</b>  |    |

### INVITED LECTURES

- |    |   |    |
|----|---|----|
| 5. | <i>Finite Element Method Scaffoldings Modelling Based on Laboratory Tests</i>                       | 29 |
|    | <b>E. Błazik-Borowa, A. Misztela, M. Pieńko, A. Robak</b>   |    |
| 6. | <i>Use of the Blind Rivets in Sandwich Panels</i>   | 33 |
|    | <b>R. Studziński</b>  |    |
| 7. | <i>First-Order Approach for Structural Topology Optimization with Low-Cycle Fatigue Constraints</i> | 37 |
|    | <b>P. Tazowski, B. Błachowski, J. Logo</b>  |    |

### LECTURES

- |     |   |    |
|-----|---|----|
| 8.  | <i>Analysis of the Harmonic Excitation of Scaffolding Structures</i>  | 41 |
|     | <b>J. Bęc, E. Błazik-Borowa, J. Szer</b>  |    |
| 9.  | <i>Random Response of Steel Hall Subjected to the Dynamic Excitation by the Generalized Iterative Stochastic Perturbation Technique</i> | 45 |
|     | <b>R. Bredow, M. Kamiński</b>   |    |
| 10. | <i>Full-Scale Behaviour of a Telecommunication Lattice Tower Under Wind Loading</i>   | 49 |
|     | <b>I. Calotescu, D. Bîtcă, M.P. Repetto</b>   |    |
| 11. | <i>Economic and Reliability Assessment of TWCFS Structures Strengthened with CFRP Composites</i>  | 53 |
|     | <b>M.A. Dybizbański, M.W. Hązła, K. Rzeszut, I. Szewczak</b>  |    |
| 12. | <i>A Note on an Approximation on the Stress State in Inflated Damaged Cylindrical Tube</i>  | 57 |
|     | <b>A. Franus, S. Jemiolo</b>  |    |
| 13. | <i>Dependence of Membrane Structure Deformation on Different Materials</i>  | 61 |
|     | <b>N. Freiherrova, M. Hornakova, D. Juracka, M. Kawulok</b>   |    |
| 14. | <i>Optimum Design of Barrel Vaults Structures Using Rao Algorithm</i>   | 65 |
|     | <b>M. Grzywiński, T. Dede, B. Atmaca</b>  |    |
| 15. | <i>Analytical and Numerical Reliability Analysis of the Pratt Steel Truss</i>   | 69 |
|     | <b>M. Kamiński, R. Błoński</b>  |    |
| 16. | <i>An Application of the Discrete Wavelet Transform to Damage Detection in Flat Truss Girders</i>                                       | 73 |
|     | <b>A. Knitter-Piątkowska, O. Kawa, M.J. Guminiak</b>  |    |
| 17. | <i>Influence of the Rotational Flexibility of Supports on the Dynamic Parameters of the Arch Structure</i>                              | 77 |
|     | <b>M. Łasecka-Plura, Z.M. Pawlak, M. Żak-Sawiak</b>   |    |
| 18. | <i>Comparative Analysis of the Resistances of Uniplanar Joints in Lattice Structures</i>  | 81 |
|     | <b>J. Majtka, M. Gajdzicki, Ł. Supel</b>  |    |
| 19. | <i>Impact of the Initial Prestress Level on Behaviour of Tensegrity Domes</i>   | 85 |
|     | <b>P. Obara, M. Solovei, J. Tomasik</b>   |    |

20. <i>Risk Analysis Vs. Commercial Investment Completion Deadline. A Case Study</i> <b>M.Z. Obrębski</b>	89
21. <i>Parametric Identification of Uncertain Bolted Connections with Bayesian Approach</i> <b>M. Ostrowski, B. Błachowski, G. Mikułowski, Ł. Jankowski</b>	93
22. <i>Experimental and Numerical Analyses of Airflow Around Two Cylinders Angled to the Direction of Wind</i> <b>A. Padewska-Jurczak, P. Szczepaniak, R. Walentyński</b>	97
23. <i>Optimization Approach for Dome Structures</i> <b>D. Pilarska</b>	101
24. <i>Static and Dynamic Analysis of Bar Structures Using VPL on the Example of Steel Dome</i> <b>M. Redzyna, E. Kubacka, A. Wirowski</b>	105
25. <i>Results of Own Experimental Tests of a Tensegrity Simplex Under Static Loading</i> <b>A. Rutkiewicz, L. Małyżko</b>	109
26. <i>Sensitivity of Stresses and Deformations of Underground Tanks to Non-Standard Actions</i> <b>P. Sorn, M. Sondej, J. Górski</b>	113
27. <i>Free Vibration Analysis of Space-Fractional Beams</i> <b>P. Stempin, W. Sumelka</b>	117
28. <i>Probabilistic Analysis of the 6061 Aluminium Alloy Tensile Test with Random Initial Microdefects</i> <b>M. Strąkowski, M. Kamiński</b>	121
29. <i>Polyurea Coatings as a Possible Structural Reinforcement System</i> <b>J. Szafran, A. Matusiak</b>	125
30. <i>Reinforcement of Lattice Tower Legs Made of Angle Sections</i> <b>J. Szafran, J. Telega</b>	129
31. <i>Structural Bionic Systems: Design and Numerical Analysis</i> <b>R. Szmit</b>	133
32. <i>Application of Traditional Cost-Estimation Systems to Information Classification in Bim models</i> <b>R. Tarczewski</b>	137
33. <i>Catenoidal Cooling Tower – Introductory Structural Analysis</i> <b>R. Walentyński, M. Wiśniowski, D. Cornik</b>	141
34. <i>The Application of Simulation-Based Sensitivity Analysis in the Preliminary Design of Network Domes</i> <b>K. Winkelmann, K. Legowicz</b>	145
35. <i>Simulation-Based Sensitivity Assessment of a Truss Lookout Tower to Corrosion-Induced Degradation</i> <b>K. Winkelmann, J. Sikora</b>	149
36. <i>Influence of Steel Roof Structure Rigidity on the Distribution of Internal Forces in Load-Bearing Multi-Span Trapezoidal Sheet</i> <b>M. Wiśniowski, K. Koziel, L. Rogoziński</b>	153
37. <i>Optimal Cable Net as an Initial Stage of Design – Force Density Method Approach</i> <b>I. Wójcik-Grząba</b>	157
38. <i>Deformation of a Shell of a Fuel Tank Caused by Non-Uniform Soil Settlement</i> <b>K. Żyliński, J. Górski</b>	161
KEYWORDS	165
AUTHOR INDEX	167