

Preface

During the last century the progress of engineering has been tremendous. In civil engineering we witness the creation of large-span structures and tall buildings. In this respect, the properties of structural materials should be used in the most optimal way. At Tallinn Technical University the structural engineering has always been a strong discipline. It started with legendary Ottomar Maddisson, the engineer and scientist who has brought home experience from St. Petersburg and his colleagues there. Among them was also the famous B. Galerkin who has given the name to a method used widely for solving the boundary value problems in structural mechanics. The deep knowledge of fundamentals of mechanics was handed down to the students of Ottomar Maddisson. The present issue of the *Proceedings* is devoted to Valdek Kulbach who celebrates his 75th anniversary full of energy and ideas. His main field of activities is steel structures and, especially, hanging structures.

The best example of hanging structures in Estonia is the Song Festival Stage in Tallinn, erected in 1960. In 1994, another stage was erected in Tartu. Both of them are remarkable from the engineering viewpoint. The Tallinn stage has an inclined arch as one of its boundary elements cleverly balanced under the influence of gravity and cable forces, both acting out of the plane of the arch. The Tartu stage has a free elliptical boundary contour, able to deform with loading the cables and its internal forces not fluctuating so much as in the case of a rigid contour. There are many possibilities to use hanging or suspension structures to cover large spans. This issue includes several papers by Valdek Kulbach and his colleagues and followers reflecting the recent results. The overview on the long-time research at Tallinn Technical University gives a good example how the ideas have been progressing and in many cases also being materialized. A real challenge for Valdek Kulbach and his colleagues is the idea of designing the suspension bridge to build a fixed link to Saaremaa, the biggest island in Estonia.

Such special issues like the present one are actually a sort of milestones. It is not only that they summarize the results over a long period. Much more important is that they determine the gradient of scientific ideas and research. It is clear from this issue that the given gradient is remarkable (whatever the units are!) and marks clearly a very successful field in structural mechanics and civil engineering. This is a good precondition for the future.

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