**Title**

Effects influencing the behaviour of reinforcement anchorage zone (rail seat section) of prestressed concrete sleepers

**Abstract**

The railway track has the purpose of adequately transferring the trainload to the structure of the railway track. During this transfer, it has to be ensured that the track components are not subjected to loads beyond their bearing capacity. Connecting the superstructure and the substructure of the track, the sleepers are the most affected part of the railway structure. Nowadays, prestressed concrete sleepers are the most widely used sleepers in the world. The advantages of prestressed concrete sleepers such as rigidity, durability, improved geometric retention of the track, and greater weight vital for high-speed and heavy freight lines, higher bearing capacity, resistance to environmental impacts, and cracking makes it the best choice for heavily loaded railway tracks. They withstand static, cyclic, and impact loads of different types, directions, and sizes caused by trains, and are affected by support reactions of the ballast. Additionally, sleepers are affected by environmental influences (frost, humidity, temperature variation, aggressive materials) and production processes. Furthermore, sleepers must ensure adequate distance between the rails; evenly distribute loads from the rails to the ballast; maintain adequate inclination of the rails; act as support for the rail; restrict longitudinal, vertical, and horizontal rail displacement; and be resistant to wear. All of these factors, individually or together, affect the sleeper throughout its life cycle and can cause damage to the sleeper. Despite the improvement in the quality of sleeper materials, some sleepers are damaged in service and do not withstand the expected service life. Therefore, in this talk, the influence of technological and environmental effects as well as static and cyclic loading on the reinforcement anchorage zone (rail seat section) of prestressed concrete sleepers will be briefly presented.

**Short Biography**

Aidas Jokūbaitis is Associate Professor and Senior Researcher in the Department of Reinforced Concrete Structures and Geotechnics, Faculty of Civil Engineering, Vilnius Gediminas Technical University (Vilnius Tech). He obtained his PhD degree from Vilnius Gediminas Technical University, Vilnius, Lithuania. In 2021-2023, he held a postdoctoral position at Vilnius Gediminas Technical University. His research interests include prestressed concrete and reinforcement anchorage zone behaviour.