Subarea POB3: Modern materials for use in construction

Title of the presentation: Joining concrete with different deformation properties in order to improve the resistance of bridge objects subjected to shocks and area deformation

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Abstract:

Hyperstatic bridge structures (e.g. single-span and multi-span frames, reinforced concrete arches, continuous beams) are made of concrete with the same deformation capacity.

We can change the modulus of elasticity of concrete by changing the aggregate.

The application of concrete with different deformability in different parts of one structure allows to increase the resistance of the object to terrain deformation and shocks, which is important in mining areas, but also in the case of high-speed railways or poor ground conditions. The expected effect is some increase in the durability of the object. The number of minor cracks is reduced, the structure's resistance to environmental influences is increased, the financial and material costs associated with repair activities are reduced, and the life cycle of the bridge is extended

The application of concrete with different deformability requires the preparation of mixtures with strictly defined and controlled parameters.

The research concerns concretes, computational modelling methods and control monitoring methods applied in field objects.