

# MTA-BME MOMENTUM - NEW GENERATION OF STEEL BRIDGES RESEARCH GROUP

## BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS (BME)



About the Research Group

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## HORIZON-CL4-2024-TWIN-TRANSITION-01-46: CO2-neutral steel production with hydrogen, secondary carbon carriers and electricity OR innovative steel applications for low CO2 emissions (Clean Steel Partnership) (RIA) || Partner seeks Consortium

We can contribute to the following tasks as described in the Topic:

The scope also covers the maximisation of low-quality materials usage and their influence on the product quality. Where appropriate for the study proposed, analytical research infrastructures, such as but not limited to synchrotron and/or neutron facilities, should be considered as capable of providing large amount of statistically relevant data to validate chemistry and structure/morphology and solve challenges concerning hydrogen embrittlement and/or residual stresses.

### What we can bring to the consortium:

- Comprehensive research is conducted about hybrid steel structures, i.e., combination of high strength steels and normal strength steels, which could be an optimal solution for using low-quality materials.
- We developed a virtual manufacturing framework in ANSYS for simulating thermal cutting, cold-forming and welding which can be efficiently used for determining residual stresses and distortions in various materials and structural configurations.
- Experience with both deterministic and stochastic finite element analysis which may be used for virtual testing and extended analysis of product quality.
- High-quality infrastructure: structural laboratory for performing large-scale measurements and material tests, ANSYS APDL and Workbench simulation environments, qualified project management staff at university level.
- Strong collaboration with the main participants of the Hungarian bridge engineering industry, experience in joint projects
- Collaboration with European standardization bodies (CEN/TC 250/SC3/ WG5, WG13 and WG22 committees) and European Convention for Constructional Steelwork (ECCS).





# BME

## BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS

With its regular high-ranking positions (between 200 and 800) BME is among the top universities (2-6%) globally. At the university's 8 faculties and 76 departments, there are 1,200 lecturers teaching 5,000 subjects and 10,000 courses each semester. In the H2020 Framework Programme BME has ranked #1 among the Hungarian institutions with 67 funded projects. The University is an active member of the European Engineering Learning Innovation and Science Alliance (EELISA) European University, the CESAER association of universities of science and technology and the European University Association.

➤ [BME webpage](#)

➤ [BME in H2020 and Horizon Europe](#)