ERIES: Advancing frontier knowledge in earthquake and wind engineering through experimental research

Gerard O'Reilly*, Gian Michele Calvi

Centre for Training and Research on Reduction of Seismic Risk (ROSE Centre)
Scuola Universitaria Superiore IUSS Pavia
Pavia, Italy
{gerard.oreilly, gm.calvi}@iusspavia.it

ABSTRACT

This paper offers an overview of European collaborative efforts toward increased understanding and risk-focused mitigation strategies through the EU-funded ERIES (European Research Infrastructures for European Synergies, www.eries.eu) project. ERIES provides transnational access to advanced experimental facilities across Europe and Canada, fostering knowledge development in structural, seismic, wind, and geotechnical engineering. The paper outlines the project's organisational framework, primary research goals, and thematic areas of focus.

Illustrative case studies currently underway at the EUCENTRE Foundation in Pavia, Italy, are shown to demonstrate the scope of research supported by ERIES. These examples showcase how foundational research enabled by this funding initiative can significantly enhance understanding of seismic damage in structures. The project addresses critical issues such as mainshock-aftershock sequences in seismic risk analysis and the refinement of experimental loading protocols. Additionally, in-situ dynamic testing of base-isolated structures offers a unique chance to assess these mitigation devices' operational performance, furthering innovative experimental approaches.

In essence, ERIES is a key platform for fostering research collaboration across Europe, particularly in structural, seismic, wind, and geotechnical engineering in addition to the wealth of experimental data that will be produced as a result. Through its framework and transnational access opportunities, ERIES enables impactful research that improves the understanding of structural damage and informs risk assessment practices, with broad societal benefits.