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Editorial
Inaugural Issue of the International Journal of Bridge Engineering, Management and Research (IJBEMR)

Anil K. Agrawal, Dist. M. (ASCE), Ph.D., P.E.

Editor-in-chief, International Journal of Bridge Engineering, Management and Research,
Herbert G. Kayser Professor of Structural Engineering
The City College of New York, New York, NY, 10031

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It is my pleasure to serve as Editor-in-Chief (EIC) or Chief Editor (CE) of the newly established International Journal of Bridge Engineering, Management and Research in partnership with FABRE Consortium[1], which is a collaboration among Italian universities to promote and coordinate the participation of universities and consortium research institutions in scientific activities in the fields of Civil Engineering and Architecture, with particular reference to the evaluation of bridges, viaducts, and other structures.

The International Journal of Bridge Engineering, Management and Research (BER) is a fully open access online-only journal. It serves as a forum for the publication of scientific and technical papers related to all aspects of bridge engineering and management, including structural, seismic, hydraulic and geotechnical risk analysis, structural health monitoring, static and dynamic assessments, structural retrofitting, and resiliency enhancement. The journal also publishes research papers on tunnels focusing on the areas mentioned above. However, the journal does not consider papers that are purely related to construction technology, construction management of bridges and tunnels, and railway engineering. Technical research papers and case studies dealing with innovative technological or computational solutions to bridges and tunnels, as well as experimental methods and novel design and theoretical analysis procedures are strong candidates for publication in the journal.

It was possible to establish this journal only through extensive discussions and collaborative work with colleagues at FABRE Consortium, particularly the managing editors, Dr. Filippo Ubertini (University of Perugia, Italy), Dr. Francesco Ballio (Polytechnic University of Milan, Italy), Dr. Gianfranco De Matteis (University of Campania "Luigi Vanvitelli," Italy), Dr. Carmelo Gentile (Polytechnic University of Milan, Italy), Dr. Carlo Pellegrino (University of Padua, Italy), Dr. Vincenzo Simeone (Polytechnic University of Bari, Italy) and Dr. Paolo Clemente (FABRE Consortium, Italy). I am grateful for their extensive support and collaboration in establishing the journal. I am also very thankful to Dr. Walter Salvatore, President of the FABRE Consortium and Professor at the University of Pisa, Italy, for providing financial support to establish the journal. While the current editorial team has been instrumental in laying the foundation of the journal, we are in the process of establishing an international editorial board to outreach authors and reviewers worldwide so that the journal could highlight progress in bridge engineering technology from all parts of the world.

The review policy of the journal is double-blind (i.e., both author and reviewer identities are not disclosed). The decision to accept or deny a paper is based on review comments from reviewers. The editorial board of the journal has final discretion on the final decision on a paper. However, authors can appeal the decision. In that case, a declined paper will be allowed a second review by a different set of reviewers, which will be the final round of review for that paper.

Although there are several journals that publish articles in bridge engineering, the mission of this journal is to provide the authors and readers a platform that will harness innovative concepts through the use of Generative Artificial Intelligence (AI) in all our published papers. While our peer review process for all articles will ensure the confidentiality of reviewers' identities, we plan to disclose technical discussions through an attachment linked to the published articles during the peer review process. We are also preparing the journal to be indexed by SCOPUS and other engineering journal indexing databases and be assigned an impact factor once the journal meets the eligibility criteria; all papers published in the journal will be indexed by Google Scholar and other open indexes automatically in the meantime. Our journal is hosted on the the Public Knowledge Project's (PKP) Open-journal systems (OJS), which is a versatile

Discussion period open till six months from the publication date. Please submit separate discussion for each individual paper. This paper is a part of the Vol. 1 of the International Journal of Bridge Engineering, Management and Research (© BER), ISSN 3065-0569.

[1] https://www.consorziofabre.it/en/homepage/

open-source, open-access system used by more than 30,000 journals worldwide. We are proud to partner with PKP to offer all the important and useful functionalities of a journal for disseminating new scientific knowledge as widespread and easy as possible.

Our peer-review policy requires that every paper be reviewed by at least three expert reviewers. A paper with insignificant technical contributions will be declined immediately, while decisions on other papers will be based on the final recommendation of peer reviewers as the paper undergoes the review process. Once accepted, the paper will be published within four weeks of final acceptance and will be assigned to an issue of the journal on a quarterly basis. All our published papers undergo rigorous editing for both language and production quality.

In this inaugural issue of the journal, we are pleased to bring to you five papers in innovative areas of bridge engineering. The paper entitled "**Sensing Skin Technology for Fatigue Crack Monitoring of Steel Bridges: Laboratory Development, Field Validation, and Future Directions**" by Liu, Han et al. presents an innovative sensing skin technology for discovering new fatigue cracks, which are generally difficult to detect because of the highly localized nature of the sensors currently being used. This sensing skin consists of soft elastomeric capacitors (SECs), which are large-area strain gauges that transduce strain into a measurable change in capacitance. This sensor can be easily deployed over large surfaces and thus can be used to discover new fatigue cracks. The technology has been developed and characterized in a laboratory environment over the last decade. It has been recently deployed in the field on a bridge located in Kansas, USA. This paper presents and discusses technological updates that were necessary to enable field deployment, with the objective of supporting the field deployment of the SEC and other SHM technologies.

The paper entitled "**Seismic Fragility and Risk Assessment of Reinforced Concrete Bridges Undergoing Elastomeric Bearing Deformations Induced by Landslide**" by Ruggieri, Sergio et al. presents a comprehensive study on the seismic fragility of Reinforced Concrete (RC) bridges isolated by elastomeric bearing devices subjected to differential displacements induced by slow-moving landslides. The seismic behavior of isolated bridges is ruled by the performance of elastomeric bearings to reduce and dissipate earthquake actions. These bridges are subjected to service loads that usually are accounted for in the design, but possible additional actions from the surrounding environment, such as landslides affecting substructure components, can seriously undermine their seismic response. The paper describes a practical approach to investigate the seismic fragility and risk of RC bridges isolated by elastomeric bearings, which may undergo early deformations induced by the differential displacements of substructure components. The study shows that it is possible to quantify the influence of landslide-induced effects on seismic fragility and risk by using only two numerical models in order to provide decision support to transportation authorities responsible for ensuring the safety of bridges and road networks. The proposed approach has been evaluated on a real-life case study, the *Santo Stefano* Viaduct in Italy, which was subjected in the past to relevant deformations of the elastomeric bearings due to an active landslide phenomenon.

The study entitled "**A New Methodology for the Diagnosis and Monitoring of Bridges Under Slow Deformation Phenomena**" by Meoni, Andrea et al. presents a comprehensive study on the onset of damage and collapse mechanisms during low deformation phenomena due to landslides. Timely identification of slow deformation phenomena on bridges and viaducts, as well as the evaluation of their extent and evolution over time, are therefore of crucial importance for preserving the safety conditions of road networks. In common practice, the preliminary analysis of slow deformation phenomena could be carried out over large geographical areas; hence, it can be used by managing institutions to set intervention priorities among the assets under their responsibility. This paper proposes a new methodology for the diagnosis and monitoring of bridges under the effects of slow deformation phenomena based on the combined use of Synthetic Aperture Radar Interferometry (InSAR) techniques, visual inspections, geometric surveys, destructive and non-destructive testing methods, and numerical analyses. Specifically, InSAR is adopted to remotely identify bridges affected by slow deformation phenomena within large geographical areas/road networks. A practical application of the proposed methodology for the diagnosis and monitoring of a curved roadway bridge subjected to landslide phenomena is presented in the paper. The results obtained in the case study provide a sound demonstration of the effectiveness of the proposed approach.

The paper entitled "**Seismic Resilience Assessment for Steel-Concrete Composite Bridges Including Impacts of Near-Fault Earthquakes**" by Liu, Yang et al. proposes a seismic resilience assessment method for steel-concrete composite bridges (SCCB) subjected to near-fault earthquake hazards. Based on conventional probabilistic seismic hazard disaggregation analysis, a correction factor is defined to represent the proportion of the occurrence probability of the near-fault pulse-like, near-fault non-pulse-like, and far-field earthquake conditioned on a given intensity level concerning the total occurrence probability of all earthquakes. The parameters of functionality recovery functions are modified using the factor proposed, and then the restoration processes after each type of earthquake are estimated. Correspondingly, vulnerabilities of a typical SCCB under near-fault and far-field earthquakes are developed as a case study. Based on the seismic hazard and fragility results, the seismic risk for each type of earthquake in a 50-year horizon is estimated. After that, the modified functionality recovery function is derived from the expected functionality. To implement the proposed method, the expected seismic resilience indices of a typical SCCB involved in the SEQBRI project are estimated, and the seismic resilience assessment is conducted. The seismic resilience assessment without considering earthquake type is also conducted for comparison analysis using the same bridge. The result shows that the seismic resilience of bridges in near-fault earthquake scenarios can be analyzed by the method proposed, and reducing the structural vulnerability under low-intensity level earthquakes and improving the structural recovery efficiency for slight and moderate damage states are more meaningful to enhance the seismic resilience of bridges.

Finally, the last paper on “**Demand Model for Concrete Barriers Subject to Tractor Tanker-Trailer Impact**” by Cao, Ran et al. presents results on Test-Level 6 (TL-6) barriers for bridges. Test-level-6 (TL-6) barriers are specified in the U.S.A. for situations that involve a high percentage of truck traffic or unfavorable site conditions, where truck rollover or penetration beyond the railing could result in severe traffic consequences. Previous studies of TL-6 barriers impacted by tractor tanker-trailers (the truck category that creates the highest impact demands) assumed that the barriers behave rigidly. The rigid barrier assumption is investigated in this paper through simulation studies in which validated nonlinear models of the truck and barrier are employed. Parametric simulations are carried out to evaluate the effects of truck velocities, weights, and barrier heights on the impact force demands. The demand model in the current design guideline is critiqued based on the simulation results, and a discrepancy was found between the predicted barrier performance by AASHTO-LRFD loading and the truck impact. A revised demand model is proposed based on the simulation results.

All these five papers have gone through a rigorous peer review process of the journal and present innovative research in bridge engineering. They are openly accessible from the journal website and can be downloaded freely.

With this editorial note, it is also my pleasure to invite you to submit your papers addressing research with new and substantial contributions in bridge engineering to the International Journal of Bridge Engineering, Management and Research. The journal is committed to a prompt peer review process and online publication of the paper within four weeks of acceptance. We also are committed to completing our peer review process within 90 days of paper submission.