Introduction

Recent Research and Structures in Latin America

Lantsoght, Eva

DOI
10.1080/10168664.2024.2320490

Publication date
2024

Document Version
Final published version

Published in
Structural Engineering International

Structural Engineering International

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/tsei20

Introduction: Recent Research and Structures in Latin America

Eva O.L. Lantsoght (Prof. Dr.)

To cite this article: Eva O.L. Lantsoght (Prof. Dr.) (2024) Introduction: Recent Research and Structures in Latin America, Structural Engineering International, 34:2, 195-195, DOI: 10.1080/10168664.2024.2320490

To link to this article: https://doi.org/10.1080/10168664.2024.2320490

Introduction: Recent Research and Structures in Latin America

In the past decades, structural and bridge engineering in Latin America have developed significantly as a result of a number of major infrastructure projects and research programs, both nationally and internationally coordinated. This special edition of *Structural Engineering International* shines a light on recent research and structures in Latin America, as a preview of work that will be presented at the IABSE Congress 2024 in San Jose, Costa Rica, with the theme "Beyond structural engineering" organized by the Costa Rican, Chilean and Mexican National Groups of IABSE.

The IABSE Congress in San Jose focuses on the main challenges structural and bridge engineers are facing nowadays: addressing climate change (through the topics of decarbonatization and climate change, and sustainability) and moving to a circular economy (through de-constructability and second use), extending the service life of existing structures (through structural health monitoring, rehabilitation of existing structures,), in a safe manner (by considering demand loads and resilience), and by continuously improving our professional practices (by addressing topics such as constructability, communication routes, alternative systems components, software modeling, integrated design, and soil-structure interaction). Considering these challenges for our built environment, structural and bridge engineering remains a challenging, future-oriented, innovative, and rewarding profession.

With a total of 10 contributions, from Brazil, Costa Rica, and Argentina, this special issue shines a light on recent research and structures in Latin America, and includes as well the profile of the eminent structural engineering Jorge Gutiérrez. The recent structure that is discussed in this special issue looks at the challenging task of making the new stage structure for the National Theater in Costa Rica.

The recent research from the region can be divided into contributions related to structural reliability, numerical modeling, structural healthy monitoring, seismic isolation, and automated design methods—topics that align closely with the congress topics. Within the topic of structural reliability, we can find contributions regarding the reliability of cold-formed steel sections subjected to web crippling, the reliability of rack columns designed by the direct strength methods, and the safety assessment of Brazilian concrete bridges. Within the topic of numerical modeling, we can find contributions regarding applying the Potra-Pták iterative cycle for solving highly nonlinear structural problems, as well as a comparative analysis of grid theory with flexible supports with numerical models in building slabs. In combination with the topic of structural health monitoring, we can find a contribution regarding mode shape-based damage detection of twin skewed bridges based on OMA and FE model updating. For seismic isolation, we can learn about the dynamic calibration of the transverse elastic modulus of shredded rubber for use in seismic isolation, and for automated design methods we can learn about the automated generation of geometric models of box girder bridges.

As chief reviewer and editorial board member of the SEI Journal, I would like to thank all authors and reviewers for their contributions to this special issue, and I would like to thank the national groups and colleagues in the various countries of Latin America for leveraging their network in gathering these articles. Moreover, I would like to thank you, the reader and IABSE member, for your continued interest in this journal and this special issue. I hope you enjoy as much pleasure from reading these contributions as I had in managing and editing them. Finally, I hope many colleagues will join us in San Jose in September to discuss these important topics in our profession and to see the recent research and structures from Latin America as well as the rest of the world.

Prof. Dr. Eva O.L. Lantsoght
Chief Reviewer for the Special Series, Vice-Chair, SEI Editorial Board
Universidad San Francisco de Quito, Quito Ecuador
Delft University of Technology, Delft, the Netherlands
elantsoght@usfq.edu.ec