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SMU LYLE SCHOOL OF ENGINEERING FACULTY AWARDED THE 2020 J. JAMES R. CROES MEDAL FROM THE AMERICAN SOCIETY OF CIVIL ENGINEERS

DALLAS (SMU) – A faculty writing team from the SMU Lyle School of Engineering, has been selected by the American Society of Civil Engineers (ASCE) Awards Committee to receive the 2020 J. James R. Croes Medal for their published paper, "Effect of Supplemental Hysteretic and Viscous Damping on Rocking Response of Free-Standing Columns," *Journal of Engineering Mechanics*, May 2019. The award-winning paper examines, with modern computational tools and an improved understanding of rocking dynamics, the seismic response of the South Rangitikei Rail Bridge, built in New Zealand in the early 1970s. The publication reaches important conclusions about the remarkable seismic stability of articulated structures. The Lyle team includes Nicos Makris, the Addy Family Centennial Professor in Civil Engineering and Mehrdad Aghagholizadeh, a former doctoral student of Makris' who joined SMU in 2019 as a lecturer.

"The Croes Medal recognizes more than two decades worth of research to develop and establish a new framework for the design of tall bridges. Despite its innovative construction and half-century-long outstanding seismic performance, we believe the rocking feature of the South Rangitikei Rail Bridge has not received the attention it deserves," Makris said. "There is a profound need to explore why, in modern structural and earthquake engineering, rocking isolation has not been more widely adopted."

According to the Lyle research team, current building methods of nearly all tall valley bridges throughout the world remain entrenched in capacity design, leading to disproportionally large and expensive pile or caisson foundations. This construction approach is often associated with extensive damage during strong earthquakes. The team's studies offer engineers the knowledge and guidelines to go along with the motion of a tall structure by allowing it to uplift and rock during seismic events, therefore reducing stresses, permanent displacements, damage and cost.

Lead author Makris is a world-renowned authority on earthquake engineering. Makris' research interests are in the protection and design of structures against natural and human-made hazards. His contributions in the field consider the analysis and adoption of seismic-isolated and rocking structures, from tall bridge piers to rocking walls in buildings.

Co-author Aghagholizadeh's research focuses on earthquake-resilient and recoverable structures, specifically the seismic response of yielding structures coupled with rocking walls. The two faculty members have been research collaborators since 2016 and have co-authored six papers.

The Croes Medal is one of ASCE's most esteemed honors and is given to authors who make a notable contribution to engineering research. The award is scheduled to be presented during the Society's Annual Convention in Anaheim, CA, from Oct. 28-31, 2020.

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About the J. James R. Croes Medal

The J. James R. Croes Medal was established by the ASCE in 1912 and is named in honor of the first recipient of the Norman Medal, John James Robertson Croes, past President of ASCE. The practical value of the research and its impact on engineering practice are essential considerations to award the medal. The J. James R. Croes Medal is the second-highest honor bestowed by ASCE to a piece of academic work.

About the Lyle School of Engineering

SMU's Lyle School of Engineering, founded in 1925, is one of the oldest engineering schools in the Southwest. The school offers eight undergraduate and 29 graduate programs, including master's and doctoral degrees, through the departments of Civil and Environmental Engineering; Computer Science; Electrical and Computer Engineering; Engineering Management, Information and Systems; and Mechanical Engineering. Lyle students participate in programs in the unique Deason Innovation Gym, providing the tools and space to work on immersion design projects and competitions to accelerate leadership development and the framework for innovation; the Hart Center for Engineering Leadership, helping students develop nontechnical skills to prepare them for leadership in diverse technical fields; the Caruth Institute for Engineering Education, developing new methodologies for incorporating engineering education into K-12 schools; the Linda and Mitch Hart Institute for Technology, Innovation and Entrepreneurship, combining the innovative forces of the Lyle School of Engineering and the Cox School of Business to integrate their expertise, resources and guidance to develop technology prototypes and create viable business plans; and the Hunter and Stephanie Hunt Institute for Engineering and Humanity, combining technological innovation with business expertise to address global poverty.