


Requests for Collaboration

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Research Interests	
<ul style="list-style-type: none">● Seismic Performance Evaluation for Reinforced Concrete Structure● Seismic Reinforcement and Retrofitting● Development of Eco-Friendly Building Materials	
Creative Achievements in The Application of New and Existing Science and Technology	
<p>An experimental-numerical study was conducted to explore the cyclic behavior of RC beams, partially reinforced with a newly developed superelastic SMA. The study has explored relocating the plastic hinge by moving the SMA bars away from the beam end. The experimental results have confirmed the ability of the new alloy to significantly reduce the residual displacements. Replacing steel bars with SMA bars, at the beam ends, have lowered the strength, energy dissipation, and residual deformations. The undesirable reduction in strength and energy dissipation can be improved by relocating the plastic hinge, which slightly affects the improvement in residual deformations. Moving the SMA bars away from the beam ends has changed the curvature distribution along the beam length. The highest curvature value is measured at the location of the SMA bars, because of their relatively low yield strength. In this case, the deformation concentrates at the location of the SMA bars, which have increased the overall strength of the beam and have resulted in higher energy dissipation. The strength and rigidity of the RC beams, after relocating the plastic hinge using SMA bars, have been reasonably predicted using AIJ design equations.</p>	
Technology (Product, Process, Device, Service etc.) That I Want to Request for Collaboration	
<ul style="list-style-type: none">● Development of self-centering earthquake resistant system on reinforced concrete structure● Seismic performance evaluation for reinforced concrete members using high-strength materials● Development of timber elements for higher seismic and fire resistance performance	
A List of 5 Key Publications	
<ul style="list-style-type: none">• Plastic hinge relocation in reinforced concrete beams using Cu-Al-Mn SMA bars, S.Pareek, <u>Y. Suzuki</u>, Y. Araki, M.A. Youssef, M. Meshaly, <i>Engineering Structures</i>, Vol. 175, 765-775 (2018).• Experimental Study on Structural Performance Evaluation of R/C Beams with Hinge Relocation by Arrangement of SEA, <u>Y. Suzuki</u>, T. Ueno, S.Pareek, Y. Araki, <i>Papers on JCI Annual Convention</i>, Vol. 39, No.2 1351-1356 (2017)• Experimental Study on Elasto-Plastic Behavior of R/C Exterior Beam-Column Joints with Parameters of Varying Axial Forces and Lateral Reinforcements, <u>Y. Suzuki</u>, M Maeda, T. Ohta, J. Sakuta, T. Kiyohara, and K. Fujiwara, <i>16th World Conference on Earthquake Engineering</i>, Paper No.1959, (2017)• Residual Seismic Capacity Evaluation for RC Buildings Considering Reduction of Seismic Performances, L. Hao, <u>Y. Suzuki</u>, M. Maeda, <i>16th World Conference on Earthquake Engineering</i>, Paper No.3693, (2017)• Feasibility of Externally Activated Self-Repairing Concrete with Epoxy Injection Network and Cu-Al-Mn Superelastic Alloy Reinforcing Bars, S. Pareek, K. C. Shrestha, <u>Y. Suzuki</u>, T. Omori, R. Kainuma and Y. Araki, <i>Smart Materials and Structures</i>, Vol. 23, 105027, 13pp. (2014)	