

京都大学教育研究振興財団助成事業  
成果報告書

平成26年12月3日

公益財団法人京都大学教育研究振興財団

会長 辻 井 昭 雄 様

所属部局・研究科 工学研究科 建築学専攻

職名・学年 ポスドク研究員

氏名 SHRESTHA KSHITIJ CHARANA

助成の種類	平成25年度 ・ 若手研究者在外研究支援 ・ 在外研究長期助成		
研究課題名	Assessment on mechanical properties of Cu-Al-Mn super-elastic alloy bars and their possible seismic applications		
受入機関	Dr. M. Saiid Saiidi, Professor, Department of Civil and Environmental Engineering, University of Nevada, Reno, Nevada, United States of America.		
渡航期間	平成 25年 10月 11日 ～ 平成 26年 10月 1日		
成果の概要	タイトルは「成果の概要／報告者名」として、A4版2000字程度・和文で作成し、添付して下さい。「成果の概要」以外に添付する資料 <input checked="" type="checkbox"/> 無 <input type="checkbox"/> 有( )		
会計報告	交付を受けた助成金額	2,500,000円	
	使用した助成金額	2,500,000円	
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		滞在費	2,290,490円
当財団の助成について	(今回の助成に対する感想、今後の助成に望むこと等お書き下さい。助成事業の参考にさせていただきます。)  I would like to acknowledge and thank the support of Kyodai Zaidan Foundation for providing me opportunity to do research overseas. During my one-year stay at University of Nevada, I was able to do collaborative works with Kyoto University and also got involved in several projects related to use of innovative materials for performance improvements in concrete bridges.		

## SUMMARY OF OUTCOME

Kshitij C. Shrestha

During my one-year stay at University of Nevada, I was able to perform collaborative works with Kyoto University and also got involved in several projects related to use of innovative materials for performance improvements in concrete bridges. As a Visiting Research Scholar at Department of Civil & Environmental Engineering, University of Nevada, Reno under P.I. Dr. M. Saiidi, I was involved in following projects:

1. "Sustainable highway bridges with novel material and deconstructible components" funded by the National Science Foundation Grant IIP-1114406 [P.I.: Dr. M. Saiidi] (Grant Amount: US\$600,000). The project is a collaborative research between University of Nevada (Dr. M. Saiidi) and Kyoto University (Dr. Y. Araki). My role in this project was to act as an expert on CuAlMn superelastic shape memory alloy and work with Dr. Saiidi and Mr. S. Varela (PhD student) on project implementation and execution. During my stay, we were able to perform shaking table tests on single pier bridge using CuAlMn superelastic shape memory alloy. Details on the tests can be found in the website below:

<http://wolfweb.unr.edu/homepage/saiidi/NSF-PFI/>

2. "Design of highway bridge columns subjected to near-fault earthquakes" funded by the Federal Highway Administration Grant No. DTFH61-07-C-00031 and directed by Dr. M. Saiidi. My task in the project involved performance evaluation of advanced materials for control of post-earthquake (near-field) damage in four-span bridges through numerical modeling. A journal paper titled "Advanced Materials for Control of Post-Earthquake Damage in Bridges" following this work is currently under review. The detail on the project work can be found in the website below:

<http://wolfweb.unr.edu/homepage/saiidi/FHWA/NearFaultDesign/nearfaultdesignindex.html>

3. "Evaluation of Seismic Performance of Bridge Columns w/ Couplers and Development of Design Guidelines". My task in the project involved starting from preparation of comprehensive catalogue of different mechanical couplers and splices for bridge columns and develop a state-of-the-art ratings, followed by evaluation of their performance in bridges. Further, I was responsible for developing design equations that are parallel for bridge columns with couplers in the AASHTO specification and LRFD seismic bridge design guide.

<http://wolfweb.unr.edu/homepage/saiidi/USDOT/index.html>