东南大学 土木工程学院
Southeast University School of Civil Engineering

英属哥伦比亚大学Alam教授学术报告会

Utilizing Shape Memory Alloys to Protect Civil Infrastructure Against Seismic Hazards

形状记忆合金在土木工程抗震中的应用进展

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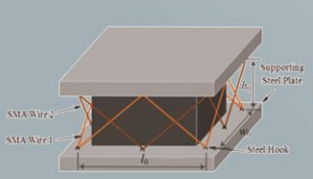

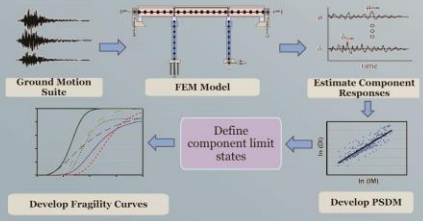

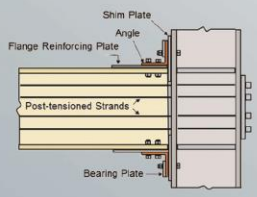

报告简介： Shape memory alloy (SMA) is a special material that can undergo large deformations and return to their undeformed shape through stress removal (superelasticity) or heating (shape-memory effect). SMAs' distinct thermomechanical properties and flag shaped hysteresis make them an ideal contender for the development and design of various structural components for civil infrastructure against seismic load. This presentation will provide an overview of recent advances through extensive research, carried out in the Applied Laboratory for Advanced Materials and Structures (ALAMS) at the University of British Columbia's Okanagan campus in the past eight years towards the development of smart structural components and systems. Research proves that the performance of such smart infrastructure supersedes conventional structures against seismic hazards. This talk presents applications and design of SMAs including the reinforcement and repair of structural elements, prestress applications, and the development of kernel components for seismic devices such as dampers and isolators. Although the high cost of SMA is still limiting its wider use, research investigating their production and processing will make it more cost-competitive. It is expected that SMAs will emerge as an essential material in the construction industry.

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