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### Super-elastic SMA dissipation and re-centring effect in structures subject to dynamic motion (Conference Paper)

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**Abstract**

This paper focuses on shape memory alloys for structural applications. As is well known these alloys may be successfully employed for mitigation of structural vibrations induced by dynamic events, mostly relying upon their property of pseudoelasticity. The proper mechanical modelling and set up of the stress-strain relationships represents the starting point for obtaining reliable results and making the model easy and computational efficient to be used for structural applications. In the paper the implementation of a bracing pseudo-elastic shape memory alloy device is proposed, that is able to produce a significant residual response reduction. The model is based on a variant that solves errors occurring in models from the literature. © Civil-Comp Press, 2014.

**Author keywords**  
Constitutive model; Iso-thermal; Modified plasticity; Pseudo-elasticity; Shape memory alloys; Structural applications; Uni-axial relationships

**Indexed keywords**  
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Super-elastic SMA Dissipation and Re-centring Effect in Structures Subject to Dynamic Motion

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**Keywords:** shape memory alloys, constitutive model, uni-axial relationships, pseudo-elasticity, modified plasticity, iso-thermal, structural applications.

**Summary**  
This paper focuses on shape memory alloys for structural applications. As is well known these alloys may be successfully employed for mitigation of structural vibrations induced by dynamic events, mostly relying upon their property of pseudoelasticity. The proper mechanical modelling and set up of the stress-strain relationships represents the starting point for obtaining reliable results and making the model easy and computational efficient to be used for structural applications. In the paper the implementation of a bracing pseudo-elastic shape memory alloy device is proposed, that is able to produce a significant residual response reduction. The model is based on a variant that solves errors occurring in models from the literature.  
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