

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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Author: Ms. Michelle Guzman
Mexico, guzman.nieto.michelle@gmail.com

ANALITICAL AND EXPERIMENTAL QUANTIFICATION OF STIFFNESS AND DAMPING FOR
DRY FRICTION DAMPERS AND THEIR APPLICATION TO IMPACT.**Abstract**

Mechanical vibrations can induce fatigue, damage structures and create discomfort. As a result, a significant amount of work has been conducted regarding the development of strategies to reduce the dynamic response of a particular system while withstanding cyclic loads and shock inputs. Wire rope springs rely on dry friction to dissipate large amounts of energy in a compact package and thus, isolating sensitive components to both harmonic and shock-like pulses. The objective of this work is to explore the nonlinearity of wire rope isolators in their damping and stiffness, and obtain the analytical and experimental shock response as well as hysteresis loops in order to quantify the energy dissipation during shock and cyclic loading. It is expected that this research will lead to developing improved shock isolators specially suited for aeronautical applications.