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Theory and application of pseudo-damping in structures

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This presentation describes the underlying physics and theory of pseudo damping to reduce vibration of conservative structures. The theoretical approach is based on particular properties of harmonic functions that lead to construction of a complex system that exhibits nearly irreversible energy transfer. This approach also provides the ability to tailor energy absorption from a particular structure in the absence of damping. The authors will also discuss extension of the concept to continuous systems and its application to waveguides. The presentation will illustrate test results including application to reduce vibrations in a satellite. [Research carried out while AA served at NSF.]