

Fractional Order Controller Design for Vibration Attenuation in an Airplane Wing

Authors : Birs Isabela, Muresan Cristina, Folea Silviu, Prodan Ovidiu

Abstract :

The wing is one of the most important parts of an airplane because it ensures stability, sustenance and maneuverability of the airplane. Because of its shape, the airplane wing can be simplified to a smart beam. Active vibration suppression is realized using piezoelectric actuators that are mounted on the surface of the beam. This work presents a tuning procedure of fractional order controllers based on a graphical approach of the frequency domain representation. The efficacy of the method is proven by practically testing the controller on a laboratory scale experimental stand.</o:p>

Keywords : fractional order control, piezoelectric actuators, smart beam, vibration suppression

Conference Title : ICCARS 2016 : International Conference on Control, Automation, Robotics and Systems

Conference Location : New York, United States

Conference Dates : October 10-11, 2016