

عنوان مقاله:

Aircraft online Structural Health Monitoring Systems using FiberBragg Gratings

محل انتشار:

دومین کنفرانس بین المللی مهندسی مکانیک و هوافضا (سال: 1396)

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خلاصه مقاله:

Since the aircrafts are one of the most important and strategic equipment of each country thus their structural health is so vital in both civil and military industries. On the other hand, lots of developments had been done and are under process in both electronics and mechanics to optimize the aircrafts operations and maximize their safety level of the flights. In this regards, one of the most substantial cares which shall be considered to increase the aircrafts flight safety is to be sure about the aircrafts structural health and prevent of any damages or cracks due to the sudden temperature changes or tensions on their body and functional parts like wings, rudders and so on which have main rules in the aircrafts controlling. Right the moment, visual checking and periodic time monitoring and testing are the routine procedures of structural health monitoring of the aircrafts but these methods are not completed and safe because of lots of problems like : visual checking cannot indicate all the cracks and defects, offline testing based on time intervals would not be enough as cracks or damages can make big problems during flights and lead them to crashes and at last, available procedures are time wasting and cost effective methods because in some cases, parts shall be de-assembled and tested via external equipment. What is presented in this article, is using fiber optic sensors which are designed based on Fiber Bragg Gratings, to have an online structural health monitoring of the aircrafts and being informed about all temperature or tension parameters of the structure and vital mechanical parts even during the flight.

کلمات کلیدی:

SHM systems, fiber Bragg grating, online monitoring

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