Prediction of damage evolution in engineering structures - PROMINENT

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Abstract

Nowadays, engineering structures are more complex, so advanced tools are needed to satisfy safety demands in the design process. If the loading conditions are out of the prescribed range, non-permissible deformation occurs, and structures become damaged, which can cause failure. Therefore, the prediction and prevention of damage-induced failure are mandatory. Computational modeling tools can be used as a solution for predicting the damage and failure of structures. A new PFM-based software tool, PAK-DAM, specialized for predicting damage evolution in engineering structures will be developed with the possible extension to cutting-edge materials such as Shape Memory Alloys.

The PAK-DAM software tool will improve the structural design process. It will be essential for the safety, design reviews, integrity, reliability assessment, and health monitoring of infrastructural objects such as dams, bridges, buildings, water towers, and engineering structures in automotive, aircraft, airspace, ships, biomedical, and electric power industries.

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