

Computation, Simulation and Visualization of Pulverizing Aircraft Mountain Crashes

Goong Chen, Texas A & M University, USA

(Yi-Ching Wang, Cong Gu, Alain Perronnet, Bandar Bin-Mohsen, and Hichem Hajaiej)

Abstract

The crash of the Germanwings Flight 9525 is the most high-profile airlines accident in the year 2015. The airplane "pulverized", i.e., broke up into pieces, in the mountains of the French Alps after the suicidal control by co-pilot Andreas Lubitz. In this talk, we use impact mechanics and engineering to model and simulate this air crash. The physical model is mostly based on the PDEs in the Johnson-Cook model. Numerical computations are based on the finite element methods and the use of LS-DYNA and ANSYS Explicit Dynamics software. One can see how and under what conditions an airplane could pulverize through video animations obtained from supercomputer results.