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# ANALYSIS/PDE SEMINAR SERIES

**TOPIC:** Malaysia Airlines Flight MH370: A Numerical Simulation Study of Airplane Crash and Water Landing

**SPEAKER:** Cong Gu, Texas A&M University

**TIME:** 9:00 – 10:00 am, 12 December 2014, TBD (待定)

**VENUE:** Room 204, Pudong Campus, 1555 Century Avenue (世纪大道 1555 号, 浦东校区, 204 室)

## ABSTRACT OF THE TALK

On March 8, 2014, Malaysia Airlines flight MH370 disappeared one hour after take-off on a route from Kuala Lumpur to Beijing. Its mysterious fate is one of the most intriguing stories of the year 2014. In this talk, the speaker will first revisit the mathematical problem as a classical water-entry problem in applied mathematics. Then the entry of an airliner into the ocean will be modeled as a two-phase fluid-structure interaction problem with compressible aero-hydrodynamics and six-degree of freedom of motion. Numerical simulations are performed by using the OpenFOAM software. Several video simulations of dynamic motion of an airliner flying into the ocean will be shown. Impact damage will also be assessed based on the analysis of the Space Shuttle Challenger disaster. This is joint work by G. Chen, C. Gu, P.J. Morris, E.G. Paterson, A. DSergeev, Y.-C. Wang and T. Wierzbicki.

## BIOGRAPHY

Cong Gu is currently doctoral candidate in Mathematics in Texas A&M University. His research interests are Partial Differential Equations, Computational Fluid Dynamics, Turbulence Modeling, Numerical Analysis.