

PHYSICAL MATHEMATICS SEMINAR

Flutter instability of a single flag or several parallel flags in airflow

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ABSTRACT:

When immersed in a uniform airflow, flexible plates can exhibit a flutter instability above a critical value of the flow velocity. This instability results from the competition between the destabilizing pressure forces and the stabilizing bending stiffness of the flags. We have both investigated the flutter of a single flag clamped into a vertical mast and the coupled dynamics of several parallel flags. A linear stability analysis has also been carried out in the limit of a potential flow. Mode shapes are assumed to be one-dimensional (as observed in the experiments) but the flow is calculated in three dimensions. This stability analysis allows to predict the critical velocity, the mode shapes and their frequencies which compare well with experimental measurements.

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TUESDAY, NOVEMBER 18, 2008

2:30 PM

Building 2, Room 105

*Refreshments at 3:30 PM in Building 2, Room 349
(Applied Math Common Room)*



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