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Gravity effects on wind-induced flutter of leaves NICKALAUS CLEMMER[1], University of Colorado Boulder/Colorado Mesa University, KARSTEN KOPPERSTAD, TOMAS SOLANO, KOUROSH SHOELE, JUAN ORDONEZ, Florida State University — Wind-Induced flutter of leaves depends on both wind velocity and the gravity. To study the gravitational effects on the oscillatory behavior of leaves in the wind, a wind tunnel that can be tilted about the center of the test section is created. This unique rotation capability allows systematic investigation of gravitational effects on the fluttering response of leaves. The flow-induced vibration will be studied for three different leaves at several different tilting angles including the wind travels horizontally, vertically downward and vertically upward. In each situation, the long axis of a leaf is placed parallel to the wind direction and its response is studied at different flow speed. Oscillation of the leaf is recorded via high-speed camera at each of setup, and the effect of the gravity on stabilizing or destabilizing the fluttering response is investigated.

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