ON THE PERIODIC MOTIONS OF A ONE-DEGREE-OF-FREEDOM OSCILLATOR

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We present a mechanical model for an oscillator with one degree of freedom under the influence of a flowing medium. Under fairly general conditions we show that the ensuing differential equation has at most two limit cycles and we give examples where exactly two limit cycles will occur. The implications of this result are that it is possible for a system of this kind to exhibit galloping even when the so-called Den Hartog criterion of local instability is not satisfied.

Joint work with: André Zegeling.