

Abstract Submitted  
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**Gust effects on a freely falling plate**<sup>1</sup> HUI WAN, HAIBO DONG, ZONGXIAN LIANG, Wright State University, FSRG TEAM — Depending on the Reynolds number and the Froude number, a freely falling plate usually performs one of the following four types of motion, flutter, tumble, steady or chaos fall. It is interesting to know that if and how a gust changes the falling status of a plate. In this work, Direct Numerical Simulations (DNS) will be conducted to study the effects of gust on the freely falling plate by varying the gust amplitude, frequency, and phase relative to the falling plate. Especially, for a plate lies in the chaotic (transitional) region, how its motion be affected as a response to the gust will be discussed.

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Hui Wan  
Wright State University

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