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EXPERIMENTAL STUDY ON EFFECT OF CLIMBING RIDER ON LATERAL DEVIATION OF
SPACE ELEVATOR**Abstract**

This paper is devoted to study the lateral motion of space elevator deviation in effect of a rider climbing on tether. The motion of the rider induces lateral vibration on the space elevator excited by the Coriolis effect and it is very important to analyze such deviation which affects the operation of the space elevator system. The present study includes experimental demonstration of a rider climbing on a long tether with length 100m suspended on the ground. Lateral deviation of the on-ground model is measured experimentally and the motion is compared with the results of numerical simulation. The codes of numerical simulation are then transferred to the space condition in order to analyze the dynamic behavior of space elevator system equipped with the rider. The numerical analysis is employed to understand the deviations of the space elevator in effect of the motion of a rider.