

Airflow caused by a ball impacting on soft sand

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When a ball is dropped on a loosely packed sand bed, a surprisingly energetic jet shoots out of the bed. It is already known that the interstitial air plays an important role during the series of events caused by the impacting ball: splash and penetration, jet formation, and granular eruption. During the impact, air is pushed through the bed creating a pressure difference over the sand bed. We measure this difference as a function of time for different sets of parameters (ambient air pressure, impact velocity, ...). From this measurement, the flow of air through the bed is evaluated.