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**Vortex rings impinging on porous boundaries** STUART DALZIEL, DAMTP, University of Cambridge, ANNA MUJAL COLILLES, Universitat Politecnica de Catalunya — Vortex rings and their collisions with simple, rigid boundaries have long been studied, both in their own right and as a prototype for turbulent interactions with boundaries. Over the last few years this paradigm has been extended to the impact of vortex rings on a bed of particles. Of principal interest here has been the resuspension/erosion of the particle layer. While in some parameter ranges the boundary may still appear to the vortex ring as though it is a simple rigid solid, the reality is that even if the particles do not move the boundary will be porous. Through a series of experiments, this paper explores some aspects of how the interaction between a vortex ring and a boundary is modified when the boundary is porous. The study is fundamental, and while motivated initially by the impact of a ring on sediment layers, the interaction of vortical structures and turbulence with porous boundaries has much broader applications.

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