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Study of interaction between a vortex ring and a solid surface for a wide range of ring velocities

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A vortex ring impacting on a surface has been stidied by numerical investigation and results have been compared with experiment. Comparisons with the experimental study of an interaction between a vortex ring formed in water and carrying coloring admixture and solid surface show overall agreement. The results of calculation reveal parameters that define the size of a trace wich the vortex leaves on the surface. Surprisingly, this size does not depend on such parameters as velocity of the vortex ring and the Reynolds number.The connection of results with possible mechanism of annular structures formation on the ice of Lake Baikal is discussed.