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Tribonucleation of bubbles SANDER WILDEMAN, HENRI LHUISSIER, CHAO SUN, University of Twente, ANDREA PROSPERETTI, Johns Hopkins University, DETLEF LOHSE, University of Twente — We report on the nucleation of bubbles on solids that are gently rubbed against each other while immersed in a gas-supersaturated liquid. For given supersaturation and surface material, bubble nucleation is only observed beyond a certain threshold for the rubbing force and velocity. Above this threshold, a regularly spaced row of growing bubbles is left behind on the surface. Direct observation through the bottom of a transparent solid shows that each bubble in the row results from the early coalescence of several microscopic bubbles. From a detailed study of the wear tracks it seems that these gas nuclei originate from a local fracturing of the surface asperities in the contact area.

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