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On probabilistic aspects in the dynamic degradation of ductile materials GILLES ROY, CEA, DAM, VALDUC, HERVÉ TRUMEL, CEA, DAM, LE RIPAULT, FRANCOIS HILD, LMT-Cachan (UMR CNRS), YVES-PATRICK PELLEGRINI, CHRISTOPHE DENOUAL, CEA, DAM, DIF — Dynamic loadings produce high stress waves leading to the spallation of ductile materials such as aluminium, copper, magnesium or tantalum [1-3]. The main mechanism used to explain the change in the number of cavities with the stress rate is nucleation inhibition, induced by the growth of already nucleated cavities [4]. The dependence of the spall strength and critical time with the loading rate is investigated in the framework of a probabilistic model [4]. The present approach, which explains previous experimental findings on the strain rate dependence of the spall strength, is applied to analyze experimental data on tantalum [5].

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