

Abstract Submitted
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On the dynamic tensile strength of zirconium GARETH APPLEBY-THOMAS, AMER HAMEED, RADE VIGNJEVIC, Cranfield University, CLIVE SIVIOUR, University of Oxford, PAUL HAZELL, University of New South Wales, JONATHAN PAINTER, Cranfield University — Dynamic tensile failure (spall) initiation via cracks, voids, etc, before subsequent coalesce, is known to be highly microstructure-dependant. In particular, the availability of slip planes and other methods of plastic deformation controls the onset (or lack thereof) of spall. While studies have been undertaken into the spall response of BCC and FCC materials, less attention has paid to spall of highly anisotropic HCP materials. Here the dynamic behaviour of zirconium is investigated via plate-impact experiments, with the aim of building on an on-going in-house body of work investigating this complex class of materials. In particular, in this paper the effects of impact stress, pulse duration and texture on spall have been interrogated using velocimetry techniques.

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