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Shear Strength Measurements During Shock Loading Using Laterally Mounted Stress Gauges.

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The shear strength during shock loading of materials is of the utmost importance as it can be used to inform on resistance to ballistic attack. As such a number of techniques have been developed to determine this parameter. One method to do achieve this is the use of stress gauges mounted such that they are sensitive to the longitudinal and lateral components of stress, with shear strength being the difference between the two. A major advantage of this technique is that it places the gauge within the material flow, and as such it is possible to infer materials deformation mechanisms by observing how shear strength changes with time. However, it should also be realised that this technique is invasive as it requires the sample be sectioned such that the stress gauge can be placed in location. This presentation will therefore discuss results generated using this technique in a range of materials, and situations where the conditions of stress are known precisely. Results will also be discussed in context, both with other techniques and known materials response.