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High Rate Plasticity under Pressure using a Windowed Pressure-Shear Impact Experiment JEFFREY FLORANDO, Lawrence Livermore National Laboratory, TONG JIAO, STEPHEN GRUNSCHEL, RODNEY CLIFTON, Brown University, LOUIS FERRANTI, RICHARD BECKER, ROGER MINICH, Lawrence Livermore National Laboratory — An experimental technique has been developed to study the strength of materials under conditions of moderate pressures and high shear strain rates. The technique is similar to the traditional pressure-shear plate-impact experiments except that window interferometry is used to measure both the normal and transverse particle velocities at a sample-window interface. Experimental and simulation results on copper and vanadium samples backed with a sapphire window will be presented to show the utility of the technique to measure flow strength under dynamic loading conditions. The samples were impacted with a Ta10W flyer at approximately 200 m/s.

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