

Abstract Submitted  
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**Experimental evidence for both progressive and simultaneous shear during quasistatic compression of a bulk metallic glass<sup>1</sup>** WENDELIN WRIGHT, Department of Mechanical Engineering, Department of Chemical Engineering, Bucknell University, XIAOJUN GU, Department of Mechanical Engineering, Bucknell University, TODD HUFNAGEL, Department of Materials Science and Engineering, Johns Hopkins University, YUN LIU, JAMES ANTONAGLIA, MICHAEL LEBLANC, Department of Physics, University of Illinois at Urbana Champaign, JONATHAN UHL, Private, KARIN DAHMEN, Department of Physics, University of Illinois at Urbana Champaign — A simple mean field model for avalanche behavior during quasistatic compressive deformation of a bulk metallic glass demonstrates that two distinct types of slip events occur during serrated plastic flow. These events are distinguished by their stress drop rate profiles. A symmetric stress drop rate profile characterizes the small serrations (with stress drop rates of 400-1000 MPa/s). These small slips correspond to the progressive or incremental propagation of a shear band. A sharply peaked stress drop rate profile characterizes the large slips (with stress drop rates of 1000-100,000 MPa/s). These large slips correspond to simultaneous shear with uniform sliding over the entire shear plane. Both small and large slip events occur throughout plastic deformation.

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