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Scaling laws in fracture of metallic glasses X.K. XI, Department of Physics and Astronomy, University of North Carolina, Chapel Hill, North Carolina 27599-3255, USA, D.Q. ZHAO, M.X. PAN, W.H. WANG, Inst Phys, Chinese Academy of Sciences, Beijing 100080, China, Y. WU, Department of Physics and Astronomy, University of North Carolina, Chapel Hill, North Carolina 27599-3255, USA, J.J. LEWANDOWSKI, Dept. of Mater Sci & Eng, Case Western Reserve University, 10900 Euclid Avenue, 44106 Cleveland, Ohio, USA — Brittle metallic glasses themselves can be seen as a model system to study the mechanical properties of metallic based glassy materials. We report a brittle Mg-based bulk metallic glass which approaches the ideal brittle behavior. However, a dimple-like structure is observed at the fracture surface by high resolution scanning electron microscopy, indicating some type of 'ductile' fracture mechanism in this very brittle glass. We also show a clear scaling correlation between the fracture toughness and plastic process zone size for various glasses. The results indicate that the fracture in brittle metallic glassy materials might also proceed through the local softening mechanism but at different length scales. The full text of this work has been published under the title *Fracture of Brittle Metallic Glasses: Brittleness or Plasticity* by the authors in Physical Review Letters 94, 125510 (2005).

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