

Abstract Submitted  
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**Evidence of an Intermediate Phase in bulk alloy oxide glass system**<sup>1</sup> S. CHAKRABORTY, P. BOOLCHAND, University of Cincinnati — Reversibility windows have been observed in modified oxides (alkali-silicates and -germanates) and identified with Intermediate Phases(IPs).<sup>2</sup> Here we find preliminary evidence of an IP in a ternary oxide glass,  $(\text{B}_2\text{O}_3)_5(\text{TeO}_2)_{95-x}(\text{V}_2\text{O}_5)_x$ , which is composed of network formers. Bulk glasses are synthesized across the  $18\% < x < 35\%$  composition range, and examined in Raman scattering, modulated DSC and molar volume experiments. Glass transition temperatures  $T_g(x)$  steadily decrease with  $\text{V}_2\text{O}_5$  content  $x$ , and reveal the enthalpy of relaxation at  $T_g$  to show a global minimum in the  $24\% < x < 27\%$  range, the reversibility window (IP). Molar volumes reveal a minimum in this window. Raman scattering reveals a Boson mode, and at least six other vibrational bands in the  $100 \text{ cm}^{-1} < \nu < 1700 \text{ cm}^{-1}$  range. Compositional trends in vibrational mode strengths and frequency are established. These results will be presented in relation to glass structure evolution with vanadia content and the underlying elastic phases.

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<sup>2</sup>V. Rompicharla J. Phys.: Condens. Matter 20, 202101 (2008).

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