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Correlation of Local Structure and Electronic Properties of Glass Materials[1] VINCENZO LORDI, NICOLE ADELSTEIN, Lawrence Livermore National Lab — Wide band gap glasses such as silica and its derivatives are typically considered insulators. However, electronic transport in glasses can be important for certain applications, such as when used as the host material for a scintillator radiation detector. Here we explore the relationship between local structure in glass materials and the corresponding electronic properties of carrier transport and charge trapping. We present a novel analysis that decomposes the distribution of localized band tail states in terms of specific local structural features in the glass. Comparison of the structure-related transport properties of different glass compositions is given, using silica and sodium silicate as prototypes.

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