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Thermally Activated Processes in Polymer Glasses VIVEK PARIHAR, DAVID DROSDOFF, ALLAN WIDOM, Northeastern University, YOGENDRA SRIVASTAVA, Northeastern University & University of Perugia, INFN — A derivation is given for the Vogel-Fulcher-Tammann thermal activation law for the glassy state of a bulk polymer. Our microscopic considerations involve the entropy of closed polymer molecular chains (i.e. polymer closed strings). For thin film polymer glasses, one obtains open polymer strings in that the boundary surfaces serve as possible string endpoint locations. The Vogel-Fulcher-Tammann thermal activation law thereby holds true for bulk polymer glass but does not hold true in the ultra thin film limit of polymer glass.

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