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Novel Approach to Study of the Localization of Plastic Relaxation Events in Plastic Deformation of Amorphous Polymers QING PENG, Physics Department, University of Connecticut, MARCEL UTZ, Physics Department and Institute of Materials Science, University of Connecticut — The length scale of the elementary processes of plastic relaxation of amorphous polymers is still an open question. The computer simulation of plastic deformation gives the details of the plastic relaxation events. To study the localization of these events, a novel approach based on Delaunay tesselation and Fast Fourier Transforms techniques is invented. Using this novel approach we have studied the localization of atomic strain in discrete relaxation events during plastic deformation of amorphous polymers. The strain in such relaxation events is highly localized in regions of atomic dimensions. The implications of the novel approach and our simulation results for a universal theory of plasticity of amorphous polymers will be discussed.

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