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High resolution strain measurements in highly disordered materials

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The ability to measure small deformations or strains is useful for understanding many aspects of materials especially in soft condensed matter systems. Systematic shifts of speckles arising from small angle x-ray coherent diffraction when analyzed enable flow patterns of particle in the elastomers to be inferred. This information is obtained from cross-correlations of speckle patterns. This speckle tracking technique measures strain patterns with a accuracy similar to X-ray single crystal measurements but in amorphous or highly disordered materials.

Keyword-1

X-ray Diffraction

Keyword-2

coherence

Keyword-3

XPCS

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