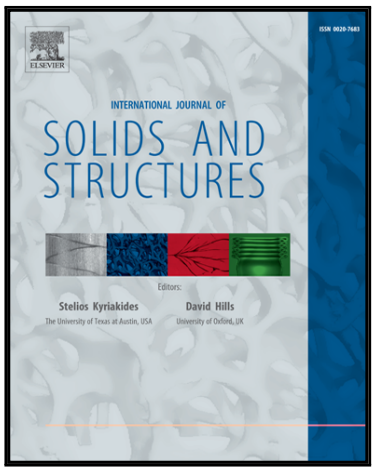

Rate effects on localized shear deformation during nanosectioning of an amorphous thermoplastic polymer

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Highlights:

- Nanosectioning of polymers is performed using an instrumented ultramicrotome.
- Shear localization structures form on the sectioned surface of the polymer at or above a critical sectioning speed.
- An adiabatic shearing model and a suitable constitutive law are used to model the thermomechanical behavior of the polymer during sectioning.
- An onset speed for shear localizations is predicted, agreeing with the experimental results.