Respective/combined roles of thermal softening and dynamic recrystallization in adiabatic shear banding initiation

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Highlights

- A unified, physics-motivated model is presented aiming at describing different hardening and softening mechanisms in the context of dynamic plasticity
- Criteria for adiabatic shear banding (ASB) formation are derived from the linear perturbation method
- Thermal and dynamic recrystallization (DRX)-induced softening effects on ASB initiation are particularly and thoroughly analysed
- The respective and combined roles of thermal and (DRX)-induced softening are discussed