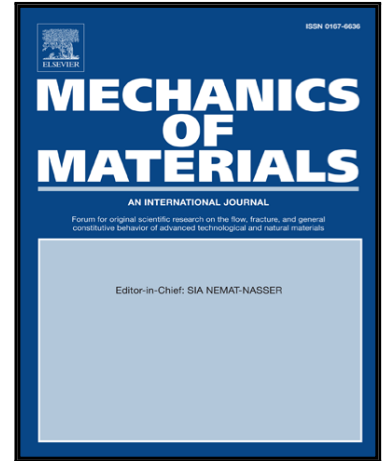


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Effect of microstructure on dynamic shear localisation in Alloy 718

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Highlights

- Dynamic shear localization in Alloy 718 is promoted by small grains, as well as by precipitation hardening.
- Finite element simulations were able to reproduce the most important features of both global force-displacement histories, and presence of shear localisation, with detailed simulations showing that temperatures exceeding 750 °C (locally above 1000 °C) and strain rates in the order of $2 \cdot 10^5 \text{ s}^{-1}$ were reached in the band during localization.
- Shear localisation, which is clearly observed from post-test metallographic inspections, does not always produce a drop in the macroscopic load–displacement curve.

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