Effect of nodal mass on macroscopic mechanical properties of nanoporous metals

J. Jiao , N. Huber

PII: S0020-7403(17)31701-0
DOI: 10.1016/j.ijmecsci.2017.10.011
Reference: MS 3977

To appear in: *International Journal of Mechanical Sciences*

Received date: 23 June 2017
Revised date: 20 September 2017
Accepted date: 7 October 2017

Please cite this article as: J. Jiao , N. Huber , Effect of nodal mass on macroscopic mechanical properties of nanoporous metals, *International Journal of Mechanical Sciences* (2017), doi: 10.1016/j.ijmecsci.2017.10.011

Highlights

- A nodal corrected beam modelling concept is introduced that allows local incorporation of the effective elastoplastic mechanical behavior of the nodal mass in nanoporous metals;
- The effect of the nodal mass on the macroscopic mechanical behavior of nanoporous metals is investigated;
- The leading constants determined in the scaling laws for Young's modulus and yield strength are modified;
- It is shown that the nodal correction model improves the overall agreement with literature data for the ligament size dependent strength.