Fig. S1 Temperature change as a function of time for electropulsing treatments measured by a K-type thermocouple. The detector was placed on the sample surface. The stabilized temperatures are 338 K and 473 K for 150 Hz and 450 Hz electropulsing treatment, respectively.

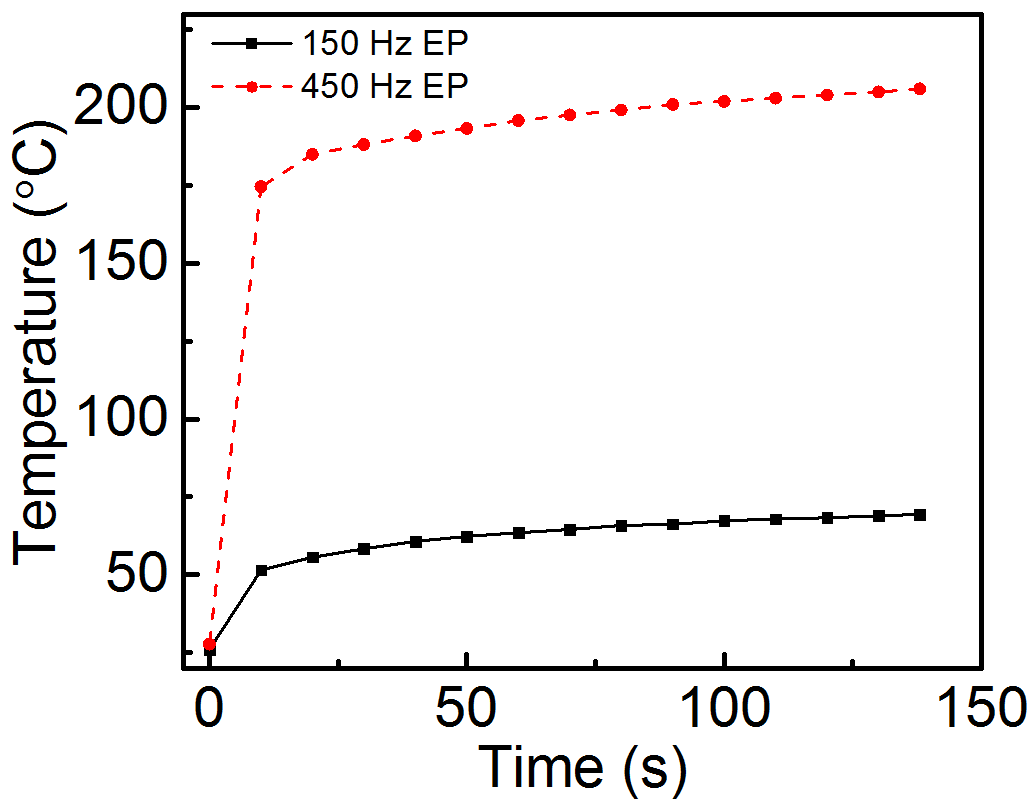


Fig. S1 Temperature evolution during electropulsing treatment

Fig. S2 exhibits a representative engineering stress-strain curve of UNSM-treated sample. An initial non-linear region is due to the fact that the loading disk is getting solid contact with sample.

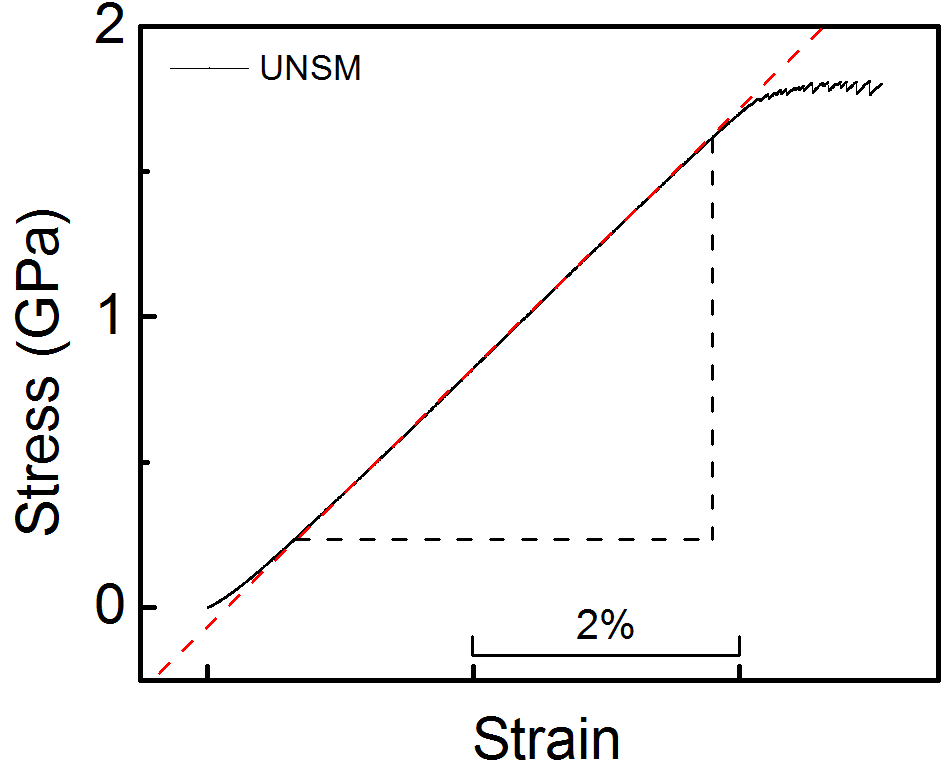
**

Fig. S2 Engineering stress-strain curve of UNSM-treated sample under compression test