



Supplementary Materials: Nanostructure and Fracture Behavior of Carbon NanoFiber-Reinforced Cement Using Nanoscale Depth-Sensing Methods

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1. Scanning Electron Microscopy Images

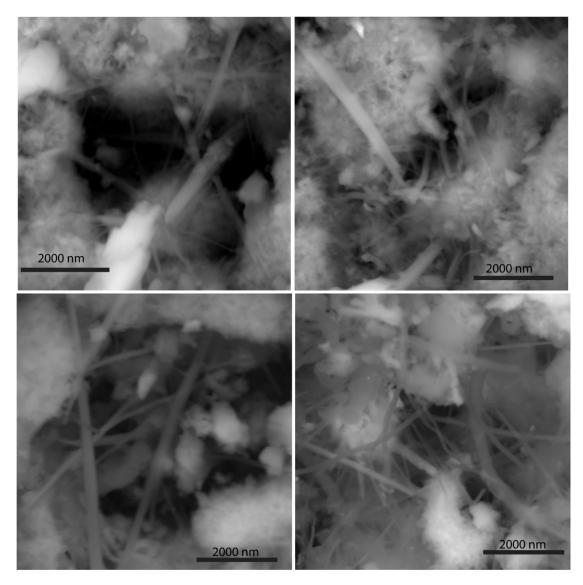


Figure S1. Environmental scanning electron images of cement reinforced with 0.5% wt Carbon NanoFibers.

2. Fractography Analyses

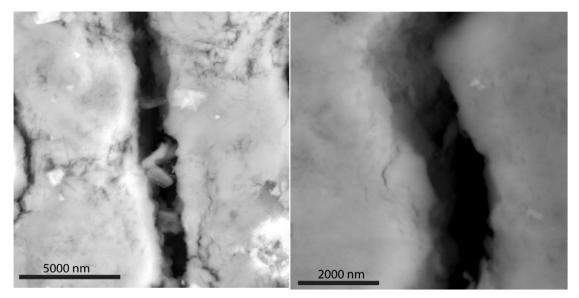


Figure S2. Fracture micromechanisms of plain Portland cement.

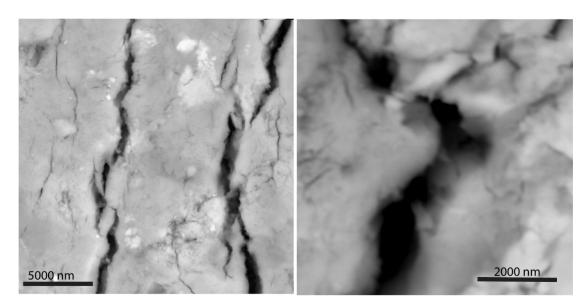


Figure S3. Fracture micromechanisms of Portland cement reinforced with 0.5% wt CNF.

3. Micromechanics Upscaling Functions

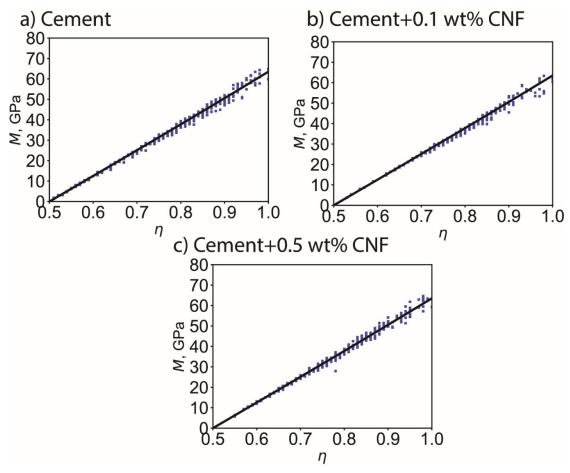


Figure S4. Upscaling linear functions for the indentation modulus M. η is the local packing density. (a) Plain Portland cement. (b) Portland cement + 0.1 wt% CNF. (c) Portland cement + 0.5 wt% CNF.

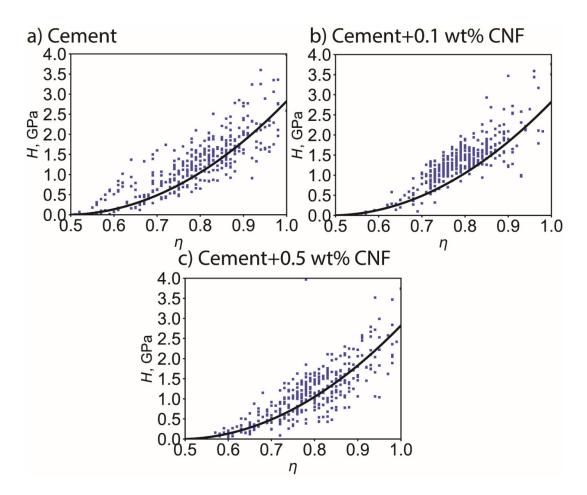


Figure S5. Nonlinear upscaling for the indentation hardness H. η is the local packing density. (a) Plain Portland cement. (b) Portland cement + 0.1 wt% CNF. (c) Portland cement + 0.5 wt% CNF.



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