**Supplementary data**

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Paper title: *Design and application of a novel in-situ nano-manipulation stage for Transmission Electron Microscopy*

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Data 1: Video1\_Flattening out\_5X speed.wmv

The video clip shows the flattening out process for the magnetic materials, which was warped inside TEM due to the magnetic field of the electromagnetic lens. Flat surface of the grapper side wall was pushed to flatten out. It is fast play of 5X speed.

Data 2: Video2\_Tensile testing\_2X speed.wmv

The Video clip shows the tensile testing of defect-free perlite with alternating ferrite and cementite. When there’s no discontinuity in the cementite phase, fracture occurs in the ferrite layer. It is fast play of 5X speed.

Attachement:

Video1\_Flattening out\_5X speed.wmv

Video2\_Tensile testing\_2X speed.wmv