Correction: Quantitative in situ TEM tensile fatigue testing on nanocrystalline metallic ultrathin films

Ehsan Hosseinian and Olivier N. Pierron*

The authors have found an error in the post-processing scheme to calculate the stress–strain curves from the raw electrical data ($\Delta C_1 - \Delta C_2$ vs. $V_{in}$, with and without the specimen). The scheme consists of calculating $X_A'$ (using eqn (6)), from which $\Delta C_1$ is known (using eqn (1)). $\Delta C_2$ is then determined knowing the measured $\Delta C_1 - \Delta C_2$ value, from which $X_{LS}$ can be determined using eqn (1). The calibration constant $\alpha$ from eqn (1) to calculate $X_{LS}$ was omitted. As shown in corrected Fig. 3(d)–(f), the correct scheme provides a better match between the calculated and measured $X_A$, $X_{LS}$ and $X_S$ values.

The corrected versions of Fig. 3(d)–(f) are as follows:

Other figures within the original version of the manuscript, also affected by the error detailed above, have been revised. Two significant changes have been made to the following figures: (a) the calculated elastic modulus, $E$, of the Au specimens is now $\sim 25$–$50$ GPa, which is significantly lower than the expected values ($\sim 70$ GPa) and highlights compliance issues with the glue; (b) the Au specimens exhibit significantly more stress relaxation and ratcheting during the fatigue tests.

---

G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0405, USA. E-mail: olivier.pierron@me.gatech.edu
The aforementioned revised figures are as follows:

Revised Fig. 4(a)

![Fig. 4(a)](image)

**Fig. 4** (a) Selected stress–strain curves for an *ex situ* fatigue test for five different cycles (N = 1, 1000, 3000, 6000, and 11 000). The elastic modulus $E$ is about 47 GPa.

Revised Fig. 6

![Fig. 6](image)

**Fig. 6** (a) Selected stress–strain curves for an *in situ* TEM fatigue test for five different cycles (N = 1, 10, 2000, 5000, and 6990). (b) Evolution of the maximum applied stress, $\sigma_{\text{max}}$, as a function of cycles. (c) Evolution of the permanent strain under no applied stress, $\varepsilon_{\text{perm}}$, as a function of cycles. (d) Evolution of elastic modulus, $E$, as a function of cycles.
Revised Fig. S7(c)

**Fig. S7 (c) Corresponding stress–strain curves of specimens 1 and 2.**

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.