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### Erratum

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*Published in:*  
Physical Review Letters

*DOI:*  
[10.1103/PhysRevLett.106.139901](https://doi.org/10.1103/PhysRevLett.106.139901)

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*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2011

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Carbone, F., Baum, P., Rudolf, P., & Zewail, A. H. (2011). Erratum: Structural preablation dynamics of graphite observed by ultrafast electron crystallography (Physical Review Letters (2011) 106 (139901)). *Physical Review Letters*, 106(13), [139901]. <https://doi.org/10.1103/PhysRevLett.106.139901>

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**Erratum: Structural Preablation Dynamics of Graphite Observed  
by Ultrafast Electron Crystallography  
[Phys. Rev. Lett. 100, 035501 (2008)]**

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(Received 4 March 2011; published 30 March 2011)

DOI: 10.1103/PhysRevLett.106.139901

PACS numbers: 61.82.-d, 07.78.+s, 63.20.K-, 78.47.-p, 99.10.Cd

In this paper, the following statement was reported: “The overall expansion of the lattice, which can be as much as 0.08 Å at the highest fluence of 44.5 mJ/cm<sup>2</sup>, corresponds to 1.25% of the *c*-axis equilibrium value, 6.7 Å. This expansion is huge and beyond any thermal value. The thermal linear expansion coefficient ( $\alpha = \frac{\Delta L}{L_0} \cdot \frac{1}{\Delta T}$ , with *L* being the expansion and  $\Delta T$  the temperature change) for graphite is  $7.9 \times 10^{-6} \text{ K}^{-1}$  [1], and such a change would correspond to a temperature jump of more than 1500 K. Given our fluence and the heat capacity of graphite, the maximum expected temperature rise is around 40 K.”

In the calculation of the laser-induced temperature increase, there is an error due to a wrong unit conversion of the penetration depth. In the experimental conditions of this paper, given a penetration depth of 200 nm (as defined in [2]), a heat capacity *C* of  $2.67 \frac{\text{J}}{\text{K}\cdot\text{cm}^3}$  (obtained as the effective heat capacity between 300 and 800 K [3]), and a reflectivity  $R(1.55 \text{ eV}) = 0.35$  [4], the actual temperature jump

$$\Delta T = \frac{F(1 - R)}{\delta C} \quad (1)$$

would be around 542 K. Given the linear expansion coefficient specifically for the *c* axis,  $\alpha = 28 \times 10^{-6} \text{ K}^{-1}$  [1], with *L* being the expansion and  $\Delta T$  the laser-induced temperature jump, the expansion corresponding to a temperature jump of 542 K would cause an increase of the *c*-axis lattice constant of 0.1 Å. These values are reasonably close to the observations made in this paper and suggest that most of the reported long-term dynamics is thermal in origin, while in the femtosecond regime lattice motions are driven by the out-of-equilibrium electronic structure.

[1] M. S. Dresselhaus, *Graphite Fibers and Filaments* (Springer, Berlin, 1988).

[2] J. D. Jackson, *Classical Electrodynamics* (Wiley, New York, 1962).

[3] A. T. D. Butland and R. J. Maddison, *J. Nucl. Mater.* **49**, 45 (1973).

[4] A. B. Kuzmenko, E. van Heumen, F. Carbone, and D. van der Marel, *Phys. Rev. Lett.* **100**, 117401 (2008).