Erratum: Graphene production by laser shot on graphene oxide: An \textit{ab initio} prediction


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The direction of the laser $E$ field in Fig. 2(a) should be presented as the direction of a force on a \textit{negatively} charged particle, which was presented oppositely. Related to this correction, the interpretation of the origin of the charge redistribution displayed in Fig. 3 for the pulse (iv) must be corrected. The reason for electron accumulation on an oxygen (O) site extending into a vacuum is not due to the time average of the $E$ field but is due to the backward motion of the electron cloud caused by the strong electron affinity for an O ion after the decay of the $E$ field. This correction does not affect any numerical result or the main conclusions regarding the nonthermal reduction of the graphene oxide by laser shot as well as the dynamics depending on pulse shapes and intensities.

The above correction is supported by Fig. 1 in this Erratum displaying the time evolution of the charge redistribution at $t = 2.4$ fs and at $t = 4$ fs in the bottom of this figure. Red (thick) and blue (thin) contour lines show distributions of electrons and holes, respectively, in common quantities. These redistributions were induced by pulse (iv), displayed in the top of this figure, and the redistribution at $t = 2.4$ fs shows the significant depletion of electrons at an O site as being consistent with the direction of the laser $E$ field at this moment. Meanwhile the charge redistribution at $t = 4$ fs shows the backward motion of electrons to the O site and a further extension toward the vacuum, reproducing Fig. 3 but with different numbers of contour lines.

FIG. 1.