**Erratum: (2×1) -(1×1) Phase Transition on Ge(001):
Dimer Breakup and Surface Roughening
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Unfortunately, we have discovered a few inaccuracies in our quantitative evaluation of the dimer concentration as a function of temperature. We emphasize that the central conclusion of our study, “a major breakup of dimers drives the (2×1) to (1×1) phase transition,” remains unaffected.

Our evaluation was made in terms of the free energy per dimer, where rather a description in terms of total values would have been more appropriate. In short, the minimization of the total free energy with respect to the dimer concentration θ requires

$$\delta F / \delta \theta = \delta \{ \theta [-u + kT[(1 - \theta)/\theta \ln(1 - \theta) + \ln \theta]] - T[\theta s_{\text{dim}} + (1 - \theta)s_{\text{mon}}] \} / \delta \theta = 0.$$

Here u , s_{mon} , and s_{dim} denote the dimer formation energy and the entropy per dimer and monomer, respectively. Assuming that changes of u with θ , s_{dim} , and s_{mon} either cancel or equal zero gives

$$\ln[\theta/(1 - \theta)] = u/kT - s_{\text{rest}}/k,$$

with $s_{\text{rest}} = s_{\text{dim}} - s_{\text{mon}}$. This result resembles our Eq. (1) and thus also its direct derivative Eq. (2). Both these equations therefore already contain the configuration entropy for random positioning noninteracting species on a 2D lattice. Note that we have multiplied the configuration entropy of Eq. (3) with θ to obtain the total configuration entropy, which is symmetric in θ . As a result the further evaluation of the data using Eq. (4) is not justified.

In addition, we reported a value for s_{rest} of 0.8 meV/K, but that should rather have been 1 meV/K.

The obtained value for the rest entropy is extremely hard to reconcile with a phase transition confined to one single plane. Moreover, as explained in our Letter, the application of Eq. (2) yields an unphysical value for the dimer formation energy, u . Therefore, we have now reanalyzed our data. The interpretation of s_{rest} in terms of vibration entropy naturally leads to a temperature dependent entropy, which allows a perfect fit to the data with physically meaningful values for both u and s_{rest} . Acceptable values for u remain within the range given in our Letter. A full account of these new results will be published shortly elsewhere.