Amarasekara and Keesom Respond: We recently submitted a full Article on the specific heat of potassium which also contains additional measurements obtained about half a year after the original data[1] on which our Letter was based. It discusses in more detail how we came to the conclusion that charge-density waves exist in potassium.

This conclusion is being criticized in these two Comments.[2,3] They express the suspicion that the thermometer is in error below 0.8 K and base this conjecture on the similarity between the deviations of the copper and potassium data from the least-squares fit. This similarity is, however, only apparent. The deviations for potassium start already at 1.2 K and go through a maximum at 0.8 K, while the deviations for copper show a definitive trend only below 0.7 K.

Furthermore the thermometer was originally calibrated by the manufacturer and is supposed to follow T_{76} smoothly. We compared this thermometer twice with the transition temperatures of cadmium, zinc, aluminum, and indium, first in the spring and later in the fall of 1981. Within the accuracy, 2 mK, our thermometer agreed and was stable in this period. In the fall we also compared this thermometer with the vapor pressure of ^{3}He and ^{4}He and found that the temperature scale of the thermometer could be improved by adding 1 mK below 0.6 K. This change made the scatter of the copper data around the least-squares fit more random and reduced the magnitude of the deviation to less than 1% below 0.7 K, without changing the potassium results significantly. It appears therefore unlikely that the temperature scale is in such an error that it causes the specific heat of potassium to mimic a phason contribution.

It should be remembered that the contribution by phasons is only a small fraction of the total specific heat, in the order of (2–4)%, while the random errors are of the order of 1%. A least-squares fit to the data will then completely disguise any phason contribution. Only by subtracting a major part, like the electronic contribution, from the total specific heat will a small anomaly emerge. We have shown that in our Letter in Fig. 2 for potassium. Of course we had done this also for copper but did not find any change from the least-squares fit, and so did not represent this in the Letter. MacDonald and Taylor[3] attempt to show that treatment in their Fig. 2. The result is in complete disagreement with ours and must be in error. Their remark on the effective electron mass is also not compelling. It is not necessary that the effective electron masses obtained from the de Haas-van Alphen effect and from specific heat be equal; they can differ by 5%.

Remeasurement of the copper sample reproduced its specific heat very well. This is, however, not so for the potassium sample. The new potassium data still show the same phason contribution but the coefficient of the linear term went up by 7%, and the coefficient of the cubic term went down by 6%. We have no explanation for this difference and can only speculate that this is related to differences in cooling rate. However, this observation may explain why the extrapolation of our data to lower temperatures differ by about 10% from the measured results of Lien and Phillips.[4]

Finally we have plotted the results of Lien and Phillips in the same way as our Fig. 3, using their coefficients in C_0. This graph also shows indication for the existence of phasons at the same temperature, although with the maximum reduced to $1\frac{1}{2}$%.

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