Sandow *et al.* Reply: In [1] doubts are raised whether it is possible to obtain information on the density of states (DOS) of a doped semiconductor from a break junction tunneling experiment near zero bias in the variable range hopping (VRH) regime [2]. We reported on a zero-bias anomaly in the differential conductivity dI/dU which was interpreted to be related to the Coulomb gap in the DOS. Kozub [1] starts with the standard formula for the tunnel current through a barrier. Differentiating with respect to the voltage U gives

$$dI/dU = -eW\left[g_l(E_F - eU)g_r(E_F) + \int_{E_F+eU}^{E_F} dE g_l(E)\dot{g}_r(E-eU)\right]. \quad (1)$$

W is the tunneling probability per unit time and $g_l(E)$ and $g_r(E)$ are the two DOS of the two parts of the junction. If W does not depend on the voltage the energy dependence of the DOS can be obtained via (1). Thus we related our zero-bias anomaly to the Coulomb gap.

Kozub claims that the tunnel probability W in the case of a break contact should be strongly field dependent even if the DOS does not depend on the energy. We maintain that in our tunneling experiment W does not depend on the voltage. In contrast to the equilibrium case of VRH, where the hopping motion takes place both with phonon absorption and with phonon emission, tunneling is predominantly resonant or with phonon emission. This process does not involve an activation factor, i.e., no field dependent prefactor.

Another argument in [1] is that the tunneling current should be sample dependent and cannot represent the DOS because the tunnel area is too small. Recently Larkin and Shklovskii [3] discussed this problem showing that if the barrier thickness d is greater than the average distance r between impurities the DOS including the Coulomb gap feature can be revealed. Our bulk sample resistance is $R_b \simeq 10\ \Omega$ and the hopping length is $l = 100$ nm at 1 K, while $r \simeq 10$ nm. We gradually increased the distance between the broken parts. By this process the contact area and the distance are varied. We observed our zero-bias anomaly for a contact resistance R_t greater than $\approx 10\ \text{k}\Omega$ [4]. Thus R_t cannot be part of an equilibrium resistor network. Therefore a description of our experiment in terms of an optimal percolation path is inadequate.

Another criticism of Kozub concerns his prediction [Eq. (2) of [1]] of the voltage dependence of the contact resistance, also based on a thermal resistor network argument. At high T, in the Mott regime with constant DOS, our contacts show an enhanced conductance at high voltages, which we have tentatively attributed to a Schottky-type behavior due to a thin depletion layer at the contact interface. We observed that the contacts have the same high-U tail at low T. Since at high T the same contacts have a smaller hopping length l, the contacts could possibly approach the thermal limit on heating up with Eq. (2) in [1] being a good description. Nevertheless, the anomalies appearing at low T and small U have a much stronger voltage (energy) dependence than described by Eq. (2) in [1]. Therefore they represent another phenomenon. Our plausible explanation is the Coulomb gap [2].

A further point (also based on the thermal resistor network picture) raised in [1] is that the optimum resistance occurs at different sites in the sample if T and U are varied, implying large resistance fluctuations. In our experiment we have found that the resistance of a specific junction fluctuates as a function of voltages by less than about 10%. However, the overall resistance through the break junction in [2] was $R_t \sim 100\ \text{k}\Omega \approx 4h/e^2$, which means an 8 times larger resistance than the optimum pair resistance in the bulk sample. This shows that the tunneling occurs at a well-defined energy which is not determined by any percolation process in the barrier region.

In conclusion it is possible to extract information on the DOS from a break junction tunneling experiment. As the tunnel resistances are orders of magnitudes larger than the equilibrium resistance the tunnel current cannot be described in terms of a percolating resistor network, as done by Kozub [1].

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