Fig. 4. Tunneling conductance for small hopping, $t \ll \Delta\sqrt{\beta}$

For generality we considered also the case $t \sim \Delta$, since in the S-N model the assumption $t \gg \Delta$ leads to suppression of superconductivity [9]. The result is plotted at Fig.5.

Fig. 5. Tunneling conductance for large hopping, $t \sim \Delta$

As the voltage is increased from zero, the conductance G starts with the value $1/R$, corresponding to a normal metal, at voltages much less than Δ/e. After a smooth maximum it drops discontinuously at V_2 to a very small value; then at V_0 it jumps up again to a finite value on the order of $1/R$. After that, it has a logarithmic singularity at V_1, and at still larger voltages it tends to $1/R$. In experiment, a dip is always found around $V=0$, and although a small maximum is sometimes seen at very low voltages, it never reaches values comparable to the main maximum, which occurs at $eV_{max}=aT_c$ with a~3. This all makes it very unlikely that the S-N layered model with $t \sim \Delta$ is good for BSCCO. On the other hand, the assumption $t \ll \Delta\sqrt{\beta}$ together with $\overline{|T^{(2)}|^2} \ll \beta\ \overline{|T^{(1)}|^2}$ leads to results resembling the experimental data (see e.g. ref. [6]).

Now we retrurn to our basic assumption The only way to achieve agreement of the model with the tunneling data is to assume