E. Conclusions

The observed pressure effects in the alkalis require the assumption of an anisotropic scattering time, $\tau(\vec{k})$, in order to explain how relatively small increases in the warping parameters which describe the Fermi surface cause n^* to decrease. The assumption of an anisotropy in $\tau(\vec{k})$ is required both by the sign of the pressure effect, and, in the case of sodium and lithium, by its magnitude. The anisotropy in the shape of the Fermi surface is small, except possibly in the case of cesium, while the anisotropy in τ is large.

The anisotropy in τ comes from: (1) the fact that $1/|q|^2$ occurs as a k dependent weighting factor in the expression for τ and (2) the fact that $1/c^2_{\hat{q},p}$ occurs as a highly anisotropic weighting factor in the same expression. A very crude calculation shows that the first factor alone can cause considerable anisotropy in τ.

IV. References

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