

The approximate calculation of the pressure derivative of the superconducting transition temperature in Al suggests that the model potential also predicts the pressure derivatives of the higher phonon frequencies adequately, and that the strong coupling theory of superconductivity can be used to explain the behaviour of superconductors under pressure. This can only be confirmed accurately by detailed calculations of the electron-phonon coupling function and the superconducting transition temperatures. Such a study is currently being completed.

Acknowledgments

I would like to thank Dr S. Doniach for his helpful supervision of this work and for critically reading the manuscript. Thanks are also due to Drs R. W. Shaw and R. Pynn for sending me their results prior to publication. The financial support of an Exhibition of 1851 Overseas Scholarship is gratefully acknowledged.

References

- ANIMALU, A. O. E., 1966, *Proc. R. Soc. A*, **294**, 376-92.
ANIMALU, A. O. E., BONSIGNORI, F., and BORTOLANI, V., 1966, *Nuovo Cim.*, **44 B**, 159-61.
ANIMALU, A. O. E., and HEINE, V., 1965, *Phil. Mag.*, **12**, 1249-70.
ASHCROFT, N. W., 1966, *Phys. Lett.*, **23**, 48-9.
——— 1968, *J. Phys. C: Proc. Phys. Soc.*, **1**, 232-43.
BEECROFT, R. I., and SWENSON, C. A., 1961, *J. Phys. Chem. Solids*, **18**, 329-44.
BORTOLANI, V., and PIZZICHINI, G., 1969, *Phys. Rev. Lett.*, **22**, 840-2.
CARBOTTE, J. P., and DYNES, R. C., 1968, *Phys. Rev.*, **172**, 476-84.
COHEN, M. H., and HEINE, V., 1961, *Phys. Rev.*, **122**, 1821-6.
COWLEY, R. A., WOODS, A. D. B., and DOLLING, G., 1966, *Phys. Rev.*, **150**, 487-94.
FALICOV, L. M., and HEINE, V., 1961, *Adv. Phys.*, **10**, 57-105.
FRANCK, J. P., and KEELER, W. J., 1967, *Phys. Lett.*, **25A**, 624-5.
FRANCK, J. P., KEELER, W. J., and WU, T. M., 1969, *Solid St. Commun.*, **7**, 483-6.
GELDART, D. J. W., and TAYLOR, R., 1970 a, *Can. J. Phys.*, **48**, 155-65.
——— 1970 b, *Can. J. Phys.*, **48**, 167-81.
GELDART, D. J. W., and VOSKO, S. H., 1965, *Can. J. Phys.*, **44**, 2137-71.
HARRISON, W. A., 1966, *Pseudopotentials in the Theory of Metals* (New York: Benjamin).
HEINE, V., and ABARENKOV, I., 1964, *Phil. Mag.*, **9**, 451-64.
HO, P. S., 1968, *Phys. Rev.*, **169**, 523-9.
HO, P. S., and RUOFF, A. L., 1969, *J. Appl. Phys.*, **40**, 3151-6.
HODDER, R. E., 1969, *Phys. Rev.*, **180**, 530-4.
KAMM, G. N., and ALERS, G., 1964, *J. Appl. Phys.*, **35**, 327-30.
KLEINMAN, L., 1967, *Phys. Rev.*, **160**, 585-90.
——— 1968, *Phys. Rev.*, **172**, 383-90.
LANGRETH, D. C., 1969, *Phys. Rev.*, **181**, 753-62.
MA, S., and BRUECKNER, K. A., 1968, *Phys. Rev.*, **165**, 18-31.
MARTINSON, R. H., 1969, *Phys. Rev.*, **178**, 902-13.
MCMILLAN, W. L., 1968, *Phys. Rev.*, **167**, 331-44.
MCMILLAN, W. L., and ROWELL, J. M., 1965, *Phys. Rev. Lett.*, **14**, 108-12.
MILLER, R. A., and SCHUELE, D. C., 1969, *J. Phys. Chem. Solids*, **30**, 589-600.
MUNSON, D. E., and BARKER, L. M., 1966, *J. Appl. Phys.*, **37**, 1652-60.
NOZIÈRES, P., and PINES, D., 1958, *Phys. Rev.*, **111**, 442-54.
PYTTE, E., 1967, *J. Phys. Chem. Solids*, **28**, 93-103.
ROWELL, J. M., MCMILLAN, W. L., and FELDMAN, W. L., 1969, *Phys. Rev.*, **178**, 897-9.
SCALAPINO, D. J., SCHRIEFFER, J. R., and WILKINS, J. W., 1966, *Phys. Rev.*, **148**, 263-79.
SCALAPINO, D. J., WADA, Y., and SWIHART, J. C., 1965, *Phys. Rev. Lett.*, **14**, 102-5.
SCHMUNCK, R. E., and SMITH, C. S., 1959, *J. Phys. Chem. Solids*, **9**, 100-12.
SEIDEN, P. E., 1969, *Phys. Rev.*, **179**, 458-62.
SHAM, L. J., 1965, *Proc. R. Soc. A*, **283**, 33-49.
SHAW, R. W., 1968, *Phys. Rev.*, **163**, 604-11.
——— 1969 a, *J. Phys. C: Solid St. Phys.*, **2**, 2335-49.
——— 1969 b, *J. Phys. C: Solid St. Phys.*, **2**, 2350-65.
SHAW, R. W., and PYNN, R., 1969, *J. Phys. C: Solid St. Phys.*, **2**, 2071-8.

- SHYU, W. M., and GASPARI, G. D., 1969, *Phys. Rev.*, **177**, 1041-3.
SMITH, T. F., and CHU, C. W., 1967, *Phys. Rev.*, **159**, 353-8.
STEDMAN, R., ALMQVIST, L., and NILSSON, G., 1967, *Phys. Rev.* **162**, 549-57.
STEDMAN, R., and NILSSON, G., 1966, *Phys. Rev.*, **145**, 492-500.
SUZUKI, T., GRANTO, A. V., and THOMAS, J. F., 1968, *Phys. Rev.*, **175**, 766-81.
TROFIMENKOFF, P. N., and CARBOTTE, J. P., 1969, *Solid St. Commun.*, **7**, 661-4.
TROFIMENKOFF, P. N., CARBOTTE, J. P., and DYNES, R. C., 1968, *Phys. Lett.*, **27A**, 394-5.
VALLIN, J., MONGY, M., SALAMA, K., and BECKMAN, O., 1964, *J. Appl. Phys.*, **35**, 1825-6.
VOSKO, S. H., 1964, *Phys. Lett.*, **13**, 97-8.
VOSKO, S. H., TAYLOR, R., and KEECH, G. H., 1965, *Can. J. Phys.*, **43**, 1187-247.
WALLACE, D. C., 1968, *Phys. Rev.*, **176**, 832-7.
WOODS, A. D. B., *et al.* 1962, *Phys. Rev.*, **128**, 1112-20.