

JB2 Heat Transfer between Parallel Plates with
Arbitrary Surface Accommodation.* J. R. THOMAS, Jr.,
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The coupled pair of linear integro-differential equations
arising from the decomposition of the linearized Bhatnager-Gross-Krook equation in the kinetic theory of gases
has recently been treated by the singular eigenfunction
expansion technique¹. The present paper reports an app-
lication of the technique to the problem of heat transfer
between parallel plates with arbitrary surface accommoda-
tion. A coupled pair of Fredholm equations is derived,
and rapidly convergent iterative solutions are construct-
ed. These solutions are then used to obtain accurate
values of the heat flux between the plates and the
temperature and density profiles, for various values of
the accommodation coefficient, and inverse Knudsen
number. Numerical results are presented and compared to
the variational solutions of Bassanini, Cercignani, and
Pagani².

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¹J. T. Kriese, T. S. Chang, and C. E. Siewert, Int. Jour.
Eng. Science (in press).

²P. Bassanini, C. Cercignani, and C. D. Pagani, Int. J.
Heat Mass Transfer 10, 447(1967); 11, 1359(1968).