

# Abstract

Exact solutions for velocity and shear stress corresponding to the oscillating motion of a second grade fluid along the inside of an edge and the unsteady motion of an incompressible fractional Oldroyd-B fluid induced by a plane wall, applying time dependent shear to the fluid, are determined by using Integral transforms. General solutions are used to obtain limiting solutions and deduce results about other fluids' motions.

For a system of interacting particles, a new form of the Kadanoff-Baym equations is offered on the basis of the retarded and advanced quantum Green's functions. The comparison of the traditional and the offered forms of the equations allows to analyze the question to what extent Landau-Silin kinetic equations for the neutral Fermi liquid and for the electron liquid of normal metals take into account quickly varying in space and time disturbances.